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DECEMBER 1924

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INTERNATIONAL CONGRESS—SPECIAL EXCURSIONS—C. P. Dadant

PRE-WINTER EXAMINATION OF BEES—G. C. Greiner

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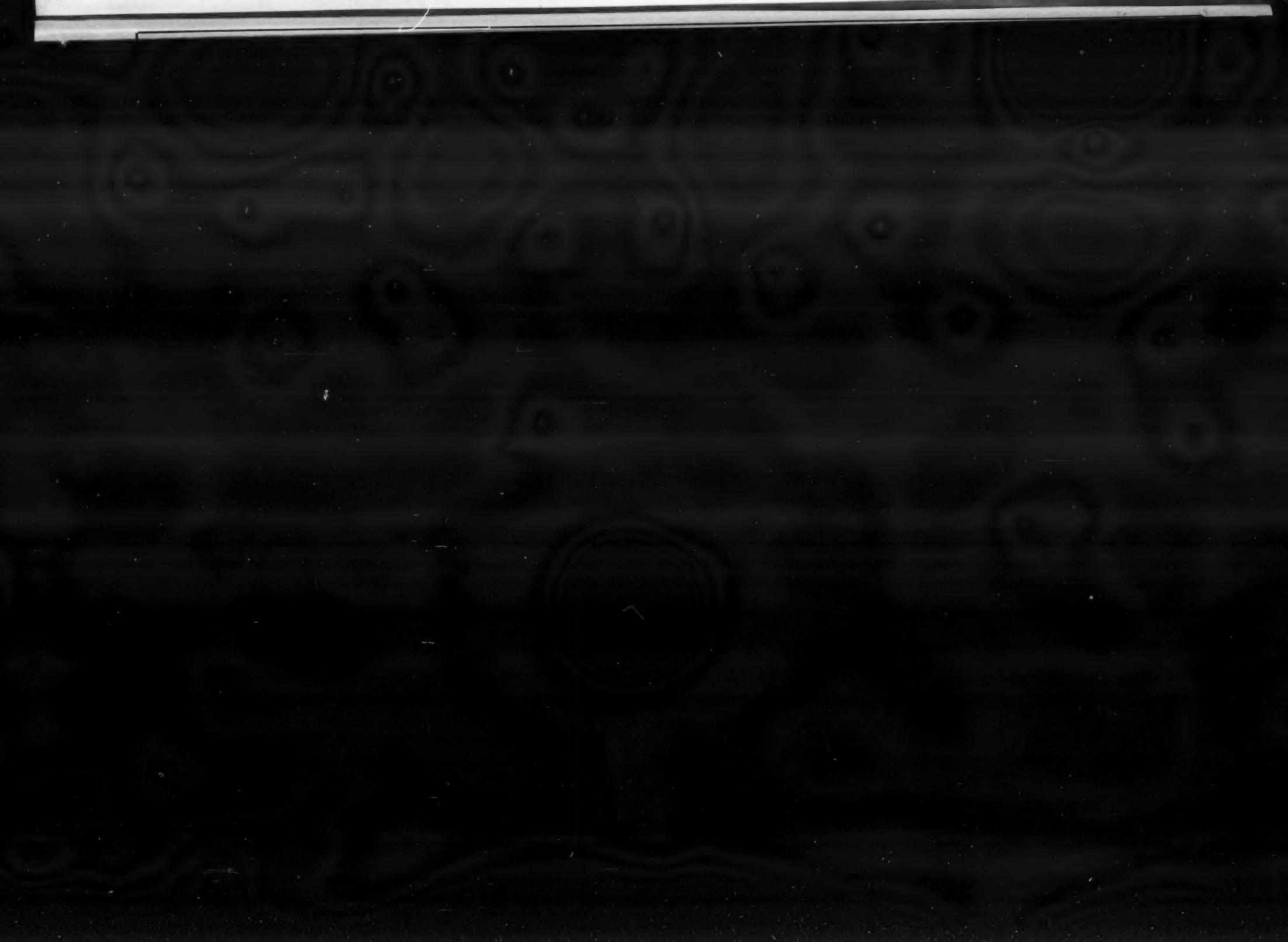

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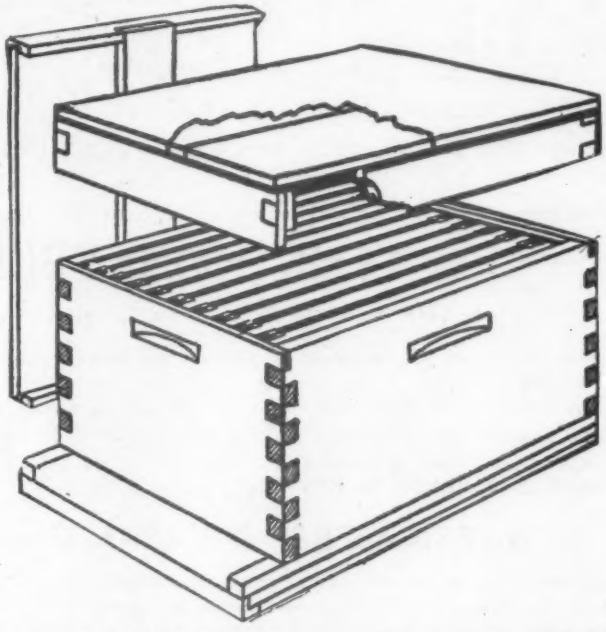

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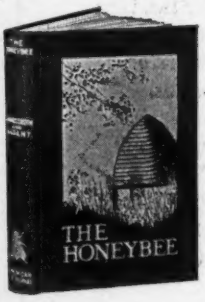

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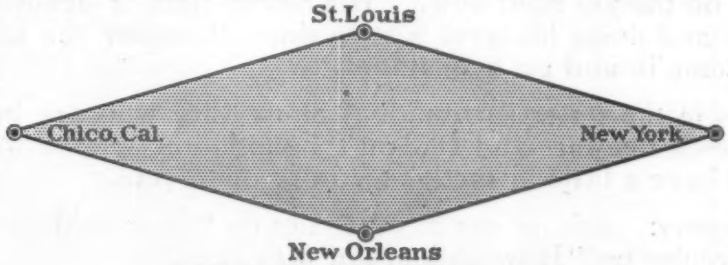

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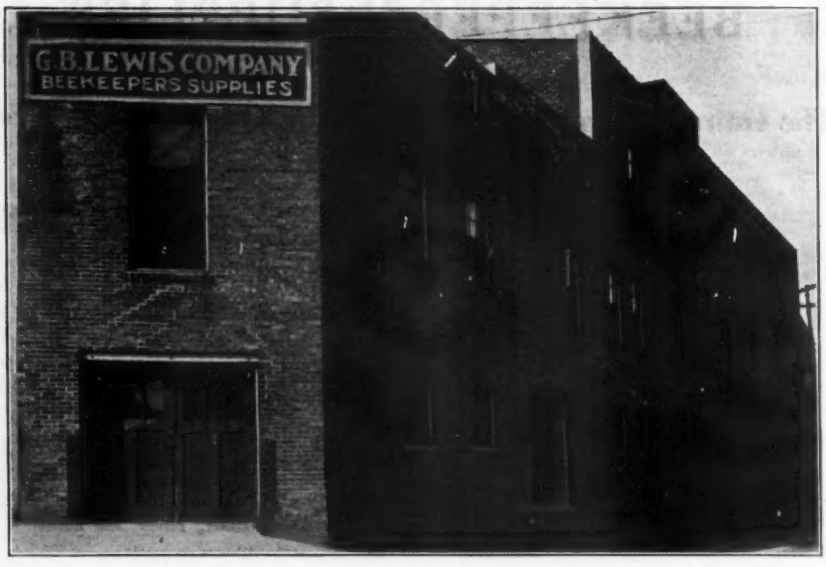

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AMERICAN BEE JOURNAL

VOL. LXIV—NO. 12 HAMILTON, ILLINOIS DECEMBER 1924

THE INTERNATIONAL CONGRESS IN CANADA

No. 2—Special Excursions

By C. P. Dadant

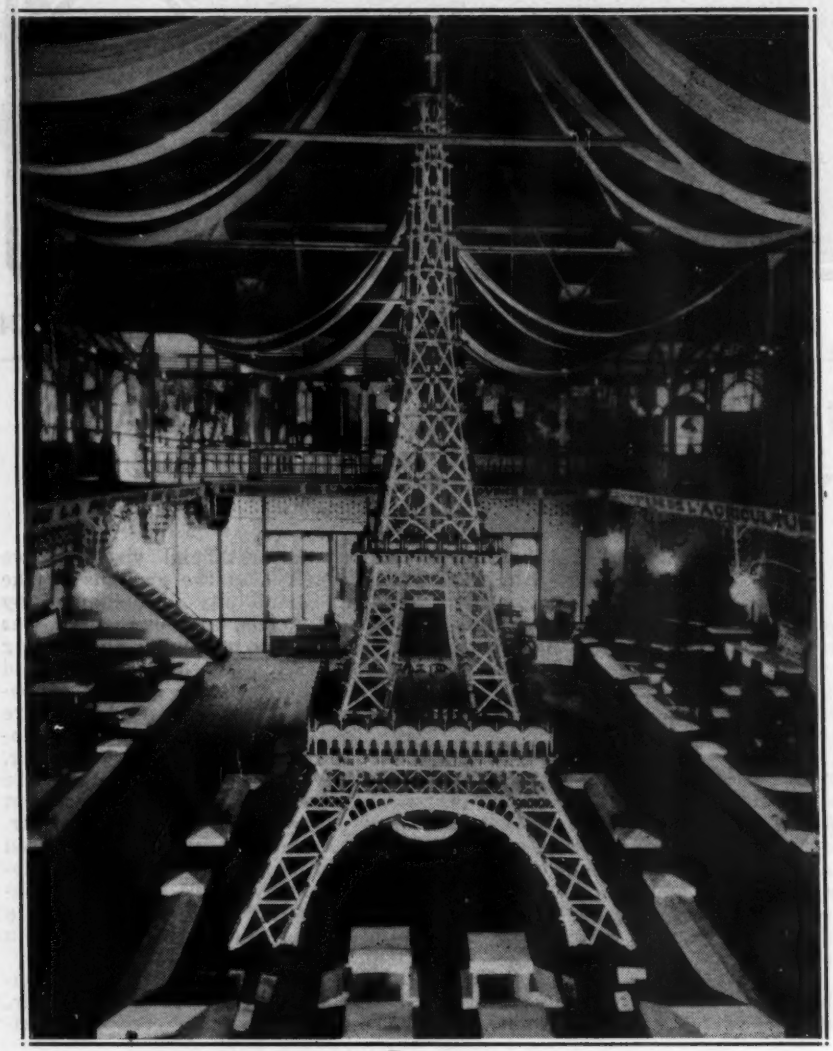
WHEN writing the closing words concerning the sessions of the Congress, last month, I failed to mention that the location of the next meeting had not been decided upon. It is to be selected by the four members of the Executive Committee, of which I am one. I acknowledge that I am at sea as to the most desirable location. There was some talk of Algiers, but inasmuch as the Algerians asked me to represent them at this Congress, without saying anything about a desire of getting the next one in Algeria, I believe it would be a mistake to put it there. We should try to locate it where a goodly number of beekeepers may go without too much expense, for beemen as a rule are not overloaded with ready cash. So I suggest that it is best to return it somewhere near its birthplace, perhaps in Belgium, France, or Switzerland. England would have been a desirable location, were it not that not a single delegate came from there, even though the meeting was held in one of the Dominions. So the matter remains with an interrogation point. I would welcome suggestions.

As a matter of course, the U. S. were well represented by official men, Dr. Phillips and his substitute Mr. Hambleton, Mr. Demuth and others from the East; but we could not ask that the next meeting be in the U. S., because we cannot expect two successive meetings on the American Continent. It must go back to Europe.

In the afternoon of the fourth day, after adjournment, we went to the Quebec Exposition again, but this time it was an official visit and we were received at the grounds by the Mayor of the city accompanied by several officials, and our entry was preceded by a martial band, playing Canadian tunes. Never before did I see a thing of this kind at a beekeepers' congress. At the hall where the bee and honey exhibit was located, which was full to overflowing, we were addressed by the Mayor, to whom I was asked to respond. But after a few words, I introduced Mr. Tombu, who was our most talented man, and he responded in a most eloquent manner, for he is a very capable man, besides being an artist, a painter, and one of the editors of a Belgian bee magazine.

The reader will remember my mention of a replica of the Eiffel Tower, 29 feet high and covered with tri-

A part of the individual honey exhibits at the Provincial Exposition. In their beauty and comprehensiveness they surpass anything on this side of the line.



The Eiffel Tower at the Exposition covered with lights and samples of the finest honey of the Dominion. The tower cost over $1,000 and 900 jars of honey were used on it.

color electric lights and bearing 900 jars of honey. There were also bee hives, honey extractors, sample copies of many bee magazines, etc.

On the following day, Friday, the excursions began that had been planned by Vaillancourt. In all the Congresses of beekeepers that I have attended, the call has been only for the actual meetings, rarely for any excursions; so that we often leave the city and the vicinity without so much as having seen anything of interest. Let us get the habit of enjoying something besides talks on bees, bees, bees, at our conventions. We will have better attendance and more pleasure. It is true that not very many places can be as interesting as old Quebec and its environs.

The Friday trip was at Ste. Anne de la Pocatiere, where the experimental farm of the Province is located, some 60 miles east, south of the St. Lawrence. The Canadians are surely very fond of the name of Ste. Anne, for there are 15 of them in Canada. We had already visited one, Ste. Anne de Beaupre. (See our editorials for October.)

Many of the beekeepers, the matter-of-fact ones, had already left for home, but there were enough there for a coach load on the Canadian National R. R. The start was at 9 a. m. and we arrived there about 11. We visited the apiary, composed of some 75 colonies mainly in Langstroth hives, a few in M. D., with practically all Italian bees. The honey crop was comparatively small, but the bees still harvested a little.

At noon, we were treated to a luncheon, in front of a tent erected in case of rain, but luckily not needed. Canadian, English and French flags were flying in the breeze. Speeches were made by the officials in charge, with short acknowledgments by the foreign visitors, in both languages.

In the afternoon, we were shown that Canada, even that far north, can produce good fruit. A number of apple trees and plum trees, in the orchard, were much loaded with fruit. The vegetable garden contained as much variety of edibles as our gardens.

On the return trip, in the special coach, a thing happened which would be very uncommon in our country of cool-headed Anglo-Saxons. One of the beekeepers, Mr. Guimont, who is a supply dealer at Levis, and who has a very fine voice, began the singing of the French-Canadian national song, and Messrs. Vaillancourt and Maheux, already mentioned, followed suit. In a minute, the entire coach load of beekeepers were on their feet, singing at the top of their voices. After this was ended, they sang the Marseillaise, the Star Spangled Banner and some English national songs. For an hour or so the singing was kept up with enthusiasm and I found then that our friend Vaillancourt could smile broadly, for he had been a very sober-looking man thus far; we must bear in mind that he had had a great task in organizing that congress and those entertainments.

On Saturday morning came the greatest of the excursions, the trip to the Saguenay, by water, which lasted two days, on the steamer Saguenay. It was enjoyed by only about 25 beekeepers, but with a full boat load of tourists. The interest of this trip is centered, not in the 150 miles of travel on the St. Lawrence as much as on the trip up the Saguenay, to Grande Baie and return. The climax is at Eternity Bay, some 30 miles up stream. The shores of the Saguenay are almost continuously high bluffs, covered with dense timber; but at Eternity Bay, two capes, Cape Eternity and Cape Trinity, rise perpendicularly some 2,000 feet and, we are told, are down a thousand feet or more below the surface. The latter of the two seems to hang over so as to threaten the apparently diminutive steamer, for men's works look shabby and insignificant by the side of those giants of Nature. It is a sight that one cannot forget and pictures are feeble attempts at description. Neither can one describe the echoes which are instantly given back, in a dozen repeated roars, by those monsters, to the bass whistle of the ship.

The stop at those capes was on Sunday morning at seven. We had spent the night at Grande Baie, much farther up the river. A little later we landed at the mouth of the Saguenay, at Tadousac, where the oldest church in America, so it is said, was built in 1646, by the Jesuits. As it was Sunday, and there was a service in this church, most of us attended and the little church was full, with not a seat to spare.

We returned towards Quebec the same day, but we were not to disembark there, except a few of the local beekeepers, but continued to Montreal. This is probably the best time to speak of our three leading European visitors, Messrs. Baldensperger, Mayor and Tombu. They were with us on board as well as some Americans and some English speaking ladies, Miss Florence Naile, secretary of the Ohio association, and a couple of ladies from Saskatchewan, Mrs. Leech and daughter, besides kind Mrs. Verret and the sweet-looking wife of Mr. Vaillancourt, who had accompanied their husbands on this trip; also Mr. and Mrs. Lajoie, of Montreal, whose name is quite proper, for they were joyful and

Tadousac and the huge hotel; at the mouth of the Saguenay. The little building, in the front, is a church, said to be the oldest in America, built in 1646, by the Jesuits.

jolly. Some of the pictures I exhibit were taken by them. There were other ladies whose names I have not noted.

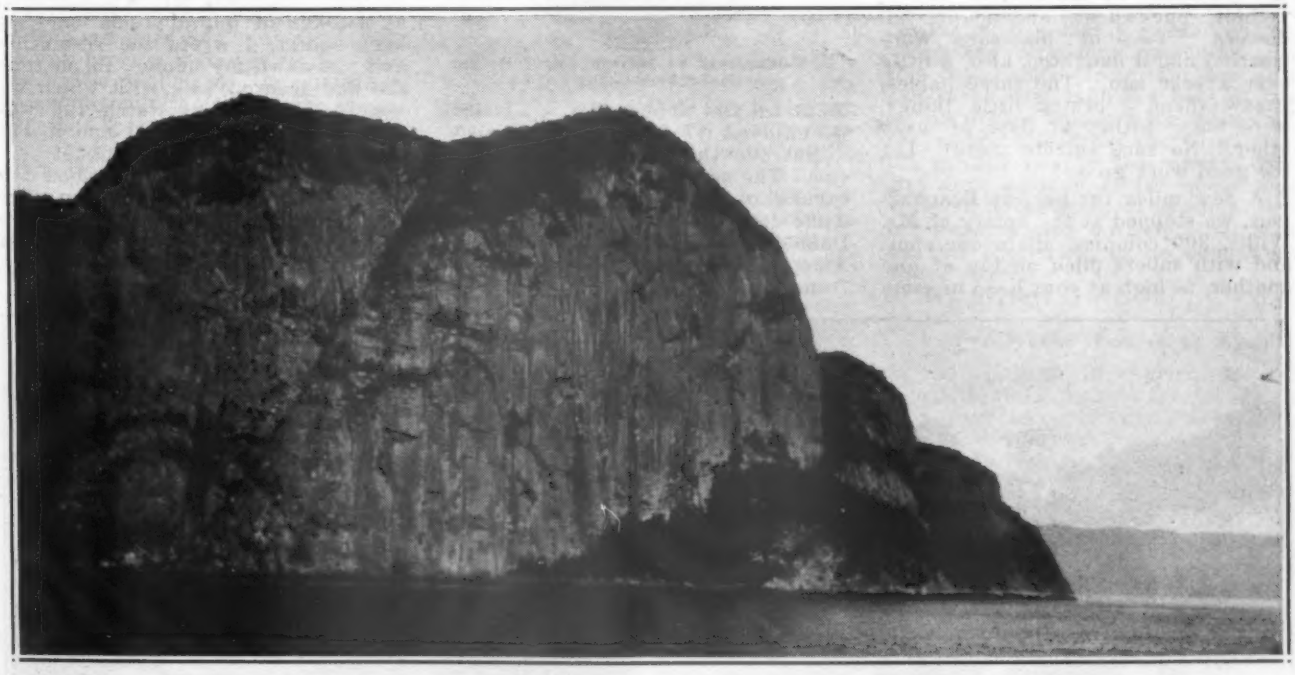
Mr. Baldensperger is a polyglot, for he speaks Arabian, Italian, Turkish, French and English. I probably forget some. He was born in Palestine, from Alsatian parents, married an American girl, daughter of an American missionary in Palestine, kept bees there and later in the Alps. His home has been for years at Nice, France, in the healthiest and most delightful neighborhood in the world, where the roses and carnations bloom in January. He would be at home anywhere.

Mr. Mayor is a justice of the peace in a little Swiss city and the president of the Beekeepers' Association. He is a sober-looking man, as becomes a dispenser of the law. But he is not above playing a joke on his friends. As I was sitting between two of our English speaking ladies, explaining to them the French signs and expressions which they could not understand, Mayor took a kodak of us and declared he was going to send a copy of it to my wife and publish another in the Swiss bee magazine. Pehaps he will favor me with a copy of it too.

Mr. Tombu is, as I said before, a man of great ability, a painter, a draftsman, who drew pencil pictures of his co-voyagers, and of the sights, as we went along. He was requested to deliver addresses on art in Canada, under the auspices of the different Belgian Consuls, who took him away from us on our arrival at Montreal. He is a great maker of puns out of everything one says. Puns are usually not translatable, else I would quote some of them here that were very funny.

I think I failed to state that we had been invited at Mr. Vaillancourt's home on the Sunday evening of our arrival, the foreign delegates and myself, and that he promised me to visit the U. S. before long, with his wife, and call on us, of course. Mrs. Vaillancourt does not speak English.

While I have been telling you this, the boat arrived at Montreal. After booking our names at the Mont Royal Hotel we started on another excursion. We had arrived at Montreal at 11 and at 1 p. m. we were landed at Laprairie, by autos. This pretty village, about 20 miles from Montreal, is across the St. Lawrence. We were welcomed by the "Circle of the Farmers' Wives," who, of course, were beekeepers' wives as well. About 150 people sat down to a



Cape Trinity, in Eternity Bay, some 30 miles up the Saguenay. It towers 2,000 feet above the water, and extends 1,000 feet below the this side of the line.

Vaillancourt, Miss Naile, C. P. Dadant, and a beekeeping friend from St. John, in front of a loaded apple tree at Ste. Anne de la Pocatiere.

Apiary at the Dominion Experiment Farm, Ste. Anne de la Pocatiere.

banquet that filled an immense hall. Evidently some of our beekeepers whom we missed at the Saguenay, were attending this excursion.

I was given a seat of honor, by the side of the local representative, Dr. Brisson, and introduced to the curate, who is always an official in Quebec. He said: "I know him, I've read his books." By the way, whereever I went, I found our books the most worn out of any on beekeeping. I take it as a compliment.

After the banquet, in autos again, we visited the two largest apiaries of that region, that of Mr. Prud'homme, who has four grown sons, all in the bee business, like himself. They have above 400 colonies, all located within a very short radius. They certainly must have better crops than we get. They do not see the need of having the hives in the shade. They are mostly in the open. The sun is not so hot there as it is with us. They were figuring on only about 100 pounds average, the season having been too wet and cool. The crops are dandelion by the million, clover, melilot, buckwheat, and many fall flowers. Two of his sons were married and a daughter, also, a little over a year ago. The three babies, I saw them, pretty little things, were born within 11 days of each other. No race suicide there! Let the good work go on!

A few miles further, at Beauharnois, we stopped at the apiary of Mr. Willis, 300 colonies, all in one spot, and with supers piled on top of one another, as high as your head in some cases. Returning at night we had to stop at the "Circle of the Farmers' Wives" and finish the dishes that we left in the afternoon. Then back to

C. Vaillancourt at Murray Bay. He can smile for here is the proof.

Montreal and to bed. Do you believe we enjoyed it?

But the thing was coming to an end. The next day, Tuesday, the last excursion was staged; it was to Ste. Anne de Bellevue, at the College McDonald, and we still had some of our Americans with us, Carr, Barclay, from New Jersey and others. I got the names all mixed up, and certainly forget some.

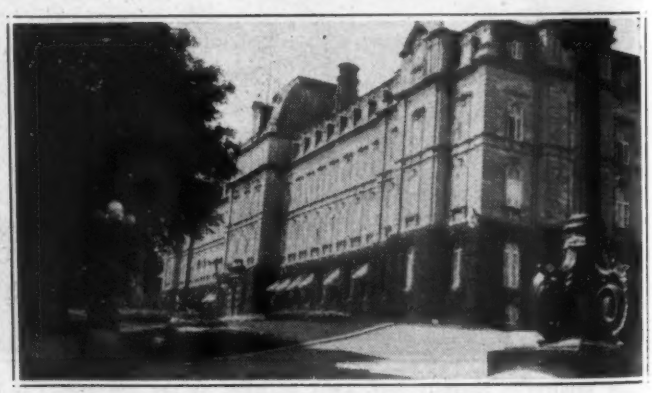
At the College, I found that the principal is F. C. Harrison, who wrote a book on foulbrood years ago, when we knew a little less on that question than we know today. (We don't know much about it yet.) W. J. Tawse is the teacher of beekeeping at the College. He is a very fine man.

We could not get around very well there, for it was raining a part of the time. We were given a lunch by the management. In the afternoon, we went back to Montreal, by boat, and "shot the Lachine Rapids." It was quite interesting and I noticed that they travel in the most turbulent part of the rapids; evidently the smooth parts are where the rocks are nearest the surface.

In the evening, the entire program was ended by a banquet. Mrs. Leech, of Saskatchewan, whom I have already mentioned, had come to me early in the day and proposed to get up a subscription to make a present to our organizer, Mr. Vaillancourt, as a token of our appreciation. At her request, I wrote the resolution and put down my name. In no time she had secured $50, with which we bought an excellent watch (he was carrying an inferior one) and it was presented to him at the banquet.

Now, friends, I have reached the end of my task; but I was ten days longer in Canada, calling upon beekeepers, and I am asked to give that account. Will you have the patience to read it?

Mr. and Mrs. Lajoie, well named, for they always smile.



Parliament building, Quebec, where the English section of the Congress met.

THE PREPARATION OF HONEY-SOLUTION FOR AN ANTI-FREEZE

By Russell H. Kelty, Department of Entomology.

THE directions here given are based on our best knowledge and belief at the present time. It is not unlikely that more extensive use under various conditions may lead to improvements in the details of the preparation of honey-solution. Neither the Department of Entomology nor the Michigan Agricultural College can, however, assume any responsibility in the matter.

Honey-solution has been used by beekeepers as an anti-freeze for automobile radiators for about eight years. Experiments and observations made on honey-solution in actual use, would seem to indicate that best results will be obtained if the following method of procedure for making the solution is used:

For districts where winter temperatures seldom fall below zero, use equal volumes of honey and water. To resist temperatures of from ten to fifteen below zero, use three volumes of honey to two of water. If the winter temperature falls below twenty below zero, use two volumes of honey to one volume of water.

To make honey-solution, select the formula which will meet local weather conditions and requirements, and measure out the proper quantities of honey and water, adding a little extra water to make up for evaporation in boiling. Heat the water to the boiling point, stir in the proper amount of honey and bring the honey-water solution to a boil. At this point stir into the honey-water solution one quart of either wood or denatured alcohol for each three gallons of solution and allow to boil for from three to five minutes. It is well to stir once in a while during the boiling process to insure proper mixing. The boiling of the alcohol in the honey solution causes the formation of a scum, which rises to the surface and which should be skimmed off. The solution is then ready for use.

However, before attempting to use honey-solution in the radiator the following precautions must be taken: The engine-head gasket must be tight to prevent seepage of the solution into the cylinders, which would result in the formation of a gum that would set up the pistons once the engine stopped. The hose connections must be tight to prevent loss of the solution at these points. It is not practical to attempt to use honey-solution in leaky radiators both on account of the objectionable stickiness and the loss of the solution. When filling the radiator the level of the solution should be at least two inches below the overflow pipe, since honey-solution expands with heat and would overflow and waste if the radiator were full. Although doubtless honey-solution circulates best when a water pump is used, good results are obtained without water pumps. In extremely cold weather it is well to use a protector over the lower six inches of the radiator's surface, especially if no water pump is used. This improves the circulation of the solution in the lower part of the radiator.

Also at temperatures of 10 below zero or colder it is well to add an additional two quarts of either wood or denatured alcohol to the radiator, to improve the circulation and depress the freezing point still further.

With constant driving some water will evaporate from the honey-solution. The motorist should occasionally inspect the level of the solution before starting on a trip and if the level of the liquid is low owing to evaporation and not to leakage, add sufficient water or alcohol to raise the level to within two inches of the overflow pipe.

The temperature at which honey-solution "slushes" varies with the percentage of honey in the solution. However, the expansion of the solution at freezing is so slight that no damage is done to the radiator. Should "slush" form either while driving or before starting, the radiator will steam as soon as the motor gets hot. In this case a blanket should be thrown over the radiator for about five minutes without running the motor, to allow the heat of the engine to liquify the solution. Once circulation is started it should continue.

The overflow pipe from the radiator must be kept open, or else the formation of steam may develop sufficient energy to burst one of the hose connections.

The boiling point of honey-solution is several degrees higher than the boiling of water and much higher than the boiling point of a water-alcohol solution. Consequently, honey-solution gives the engine better radiation. And since honey is a poor conductor of heat, it is possible to leave the engine standing quite a while in cold weather and find it still warm on returning.

It is not practical to use honeydew honey, nor unripe, or fermenting honeys, to make honey-solution. Well ripened honey, either light or dark, is satisfactory. On account of the price, dark honey is preferable.

When making the solution it should not be boiled more than five or ten minutes. If boiled too long the solution becomes so thick that it will not circulate well under low temperatures. When circulation stops, the solution in the water jacket around the piston walls may become hot enough to char.

Honey-solution is practically permanent as an anti-freeze. One filling lasts all winter unless lost by leakage. In fact the solution can be kept over summer and used again the following winter.

For best results the solution must be properly made. Also the motorist must observe the precautions mentioned.

INTRODUCING

By C. D. Cheney.

In the matter of queen introducing it may be a question whether the large beekeeper had better take chances with the least troublesome method or take some additional pains for the sake of greater certainty with smaller losses, and perhaps less trouble in the long run.

In the comparatively limited experience of the writer the following described method, which is perhaps not entirely new, has seemed to have proved its reliability. It is to be understood that the colony to be requeened is, or is made, queenless.

By taking, in the middle of the day, a couple of suitable frames (including bees, sealed brood, honey and open comb), from the colony to be requeened, to form a temporary nucleus, and at evening or the next morning placing the mailing cage with the new queen on top of the nucleus, it is almost certain that the new queen will be accepted.

Then, after two or three days examine the colony and destroy every queen cell that may have been started, after which slip the two nucleus frames back into the hive next the hive wall, taking care that the queen is between the two frames.

There are some minor details necessary to be observed in all these manipulations which the experienced beekeeper well knows, so it is not necessary to recount them here. However, it may be well to strongly advise the least possible smoke and the least possible disturbance in each manipulation. This method was successful with a laying-worker colony which had been long queenless. In this case combs from another hive had to be used, and the bees of the laying worker colony were shaken off the combs and from the hive upon the ground twenty feet away. This was done as soon as the queen was received in the mail. The actual laying workers were entirely eliminated by this procedure, as no eggs were found after.

New Jersey.

Twelve Weeks' Course at Ames

The College of Agriculture at Ames, Iowa, is making special efforts this year to specialize the twelve weeks' course for the people of the state who may be interested in making a study of other subjects of interest to them. The outline of this course is such that it can be dropped at the end of six weeks if necessary and completed the next year in the last half of the course. The work will open with the regular college winter quarter on January 5th and closes March 20th. We believe that this work should be of interest to people of this state.

AMERICAN BEE JOURNAL

Established by Samuel Wagner in 1861

The oldest Bee Journal in the English language.
Published Monthly at Hamilton, Illinois.

Entered as second-class matter at the Postoffice at Hamilton, Ill.

C. P. Dadant ---------- Editor
Frank C. Pellett ---------- Associate Editor
Maurice G. Dadant ---------- Business Manager
Subscription Rates: In the United States, Canada and Mexico, $1.50 per year; five years, $6.00. Other foreign countries, postage 25 cents extra per year.
All supscriptions are stopped at expiration. Date of expiration is printed on wrapper label.
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NUMBER OF EGGS LAID BY QUEENS

The "Observations on Brood Rearing" by Dr. Merrill, of Kansas, in our July number, page 337, together with those of Dr. Brunnich and others, showing a maximum number of eggs laid in 24 hours to be 2,000 or less, have caused some foreign writers to assert that the numbers of eggs laid, of 3,000 or more claimed by Langstroth, Quinby and especially by Charles Dadant, were exaggerations.

We are all after the facts, regardless of anything else. That is why we published Dr. Merrill's experiments. But we are positively satisfied that the results obtained by these scientists do not in the least contradict the larger numbers of egg laying. We hope that Dr. Merrill and others will continue their observations until they obtain the result of egg-laying in colonies producing several hundred pounds of honey. In 1916, the Dadant apiaries produced an average of some 235 pounds per colony. Some of the colonies produced twice that amount or more. If any one can get those results with an egg-laying of less than 3,000 previous to and during the crop, we will be ready to acknowledge that Langstroth, Quinby, Charles Dadant and others made incorrect observations.

If the laying of 2,000 or less per day, was sufficient to permit the harvesting of several hundred pounds of honey, there would be no need of larger brood chambers than the 8-frame Langstroth. Yet, every day brings us the evidence that it requires large brood chambers to produce large crops. We have seen this in Canada as well as in the U. S. Let our scientists continue their observations; they are after the facts, just as we are.

FARMERS' INSTITUTE AGAIN

The editor has again attended Farmers' Institutes and has again seen the necessity of educating the masses. The greatest trouble is that the farmers and the beekeepers who need information most urgently are the ones who least see it.

At the Perry County meeting, at Pinckneyville, Ill., only one beekeeper had brought an exhibit of honey. But it was something fine, a Langstroth size comb of honey without an empty cell except a few along the wood. The comb was built on wired foundation. This beekeeper was the only one we heard of who was practicing the sowing of sweet clover, in a locality where there is much waste land and where the waste land can only be reclaimed by the use of a deep-root legume such as sweet clover.

The American farmer is said to be the most practical. He is, where the use of machinery is concerned. But he is far from being the most practical, in the use of fertilizers. He has not yet learned the lesson that comes from overtaxing "a land flowing with milk and honey." Palestine was such a land once. It is no longer that. The United States is still a "land flowing with milk and honey" in some parts. But we are in a fair way to ruin it, if we don't heed the warnings. Return to the land what you take from it, or a great part of it at least, if you do not wish to see it become barren.

LEMON GRASS (Herva Cidreira)?

The mention of Herva cidreira in the editorials of the May number, page 222, has brought the following from Mr. D. Amaro Van Emelen, of Sao Paulo, Brazil:

"Herva cidreira has an odor which is said to correspond with the distinctive odor of queens. This plant has astonishing power to attract bees. They use it to rub the inside of the hive before hiving a swarm into it; they use it to rub the beekeeper's hands to prevent stings and even to attract a swarm from the air.

"Other plants and leaves are used to give attractive fragrance to the hives, but none is as effective as the 'Herva cidreira,' which is a GRAMINEA.

"There are two plants thus named in popular language, the other is LABIATE. The latter is the same as the Melissa officinalis, the other is the famous Vetiver of East India, an Andropogon, probably of the variety citratum.

"I have never seen it in bloom, but I am quite sure that it is the grass called by the English 'Lemon grass' and imported from India. When one scatters crushed leaves of this plant, many bees are attracted by them, and even if one puts such crushed leaves in his pocket, he will find it full of bees."

Looking up "Lemon grass" in the Standard Dictionary, we find the following:

"Any of several East India perennial tufted grasses, especially Andropogon schananthus, A. citratus and A. nardus, with long leaves, yielding an essential odoriferous oil used in perfumery."

If the above is of any value, it might be investigated farther.

THE AMERICAN HONEY PRODUCERS' LEAGUE

Watch the date of meeting of the American Honey Producers' League, and try to attend. Beekeepers are too much like the farmers; they are still wondering whether this or that organization will pay them. They look at a dollar a long time, before using it to join an association. They do not realize that the trouble lies there, if they fail to be able to increase their prices and their sales. Each man wants to do his work himself without help. But we need to brace against one another. We need to know what the other fellow is doing, how much honey he has harvested and what price he expects. Some time or other, the beekeepers will wake up to the necessity of union. Don't fail to attend your bee meetings and to support your associations. It will be profitable to you even if you cannot see where the dollar paid comes back.

FOULBROOD TRANSMITTED BY MOTH WORMS?

The Bulletin of the Society of Alpes Maritimes for September contains an account of a report made to the Academy of Sciences by M. F. Vincens, Director of the Apiarian Research Station of Cannes-Sur-Mer, in which he states that "combs covered with moth worms having been deposited upon the floor of a room which contained nuclei, some worms of the 'Galleria' were found in these nuclei upon some combs which had been intact a few days previously. Later observations evidenced the fact that numerous moth worms would leave overcrowded combs to invade the nuclei near them."

The author concludes that moth worms may carry the infection of Bacillus larvæ from one hive to another.

We believe this may happen on the floor of a room but we doubt if it could happen in a bee yard. But it is worth investigating.

A GOOD DESCRIPTION OF BEE DISEASE

A bulletin of 32 pages on diseases of bees, in the French language, has just been published in Quebec by our friend Vaillancourt, in charge of beekeeping at the Ministry of Agriculture of the Province of Quebec. It contains the latest information and several cuts from the U. S. Bulletin No. 442. Also a quotation from the A B C and one from the report of E. G. Carr of New Jersey. It will prove useful to all the French speaking beekeepers of Quebec.

FEED FOR WINTER

"If I feed sugar syrup to correct a possible fault in the quality of winter stores, I want it where the bees will use it first. I am assuming that this will be in the cells last vacated by the brood."—(E. G. Carr, of New Jersey, in Gleanings).

Right. And that is why in Canada, with much longer winters than we have, they succeed in wintering, even out-of-doors, better than we do. They always feed some sugar syrup for winter. This contains less waste and more heating material than even the best honey. But for spring breeding, honey is much better, as it contains more muscle-forming material than sugar.

SELL THE HONEY

This is the best month of the twelve in which to dispose of our honey at retail. It is at this time that people spend their extra earnings, that they look for something good, or useful or pretty, for the family, for the friends.

Many honey producers spend a part of their time bewailing the overproduction of honey and hoping that the number of beekeepers may get less. Yet, what are the facts?

Only about one hundredth part of the sweets consumed in America is honey. The balance is in part good sugar, but mostly glucose, commercial glucose, hidden under the name of "karo." corn syrup, red clover syrup, golden syrup, etc. These compounds have about one-third the sweetening power of honey; they are worth less than a fourth as much honey, for they are more or less unhealthy, containing inert material and chemicals. On the other hand, honey is equal to milk in its natural virtues, with much more nourishment than milk contains. It is one of the rare animal nature products which may be secured without causing any bloodshed. Milk and honey together are a well balanced diet.

Why is it that so many people imagine that they cannot sell their honey? Because they do not half try. Because they are afraid or ashamed to fight the popular prejudices which have caused many consumers to prefer dark, broken combs of honey to the best of our modern products of the hive.

Our people need to brace up, they need to make up their minds that honey is in demand wherever they can convince the consumers that they have **real honey** for sale.

Listen to a comparison. Some 25 years ago, a crank, a wealthy grocer of Keokuk, got it into his head that he would leave a memory of his activity. Men knew that the Mississippi River had a fall of 18 feet or more at the Des Moines Rapids and that this fall could produce an immense force. But how to proceed? When people wanted to speak of some impossibility they commonly said: " You might as well try to dam the Mississippi River." Well, this Mr. Birge induced 24 other cranks, like himself, to put each a hundred dollars in an investigation. With that $2,500 they employed a competent engineer who showed them that it was possible to dam the mighty river and produce hundreds of thousands of horse-power. The dam was built and it is running today. What did it require to get the thing under way? Just determination, the resolution that **does not leave a stone unturned** to reach the goal. Hundreds of thousands of horse-power are now supplied by the big river under the harness. I know how this came about for I was one of the 25 original cranks.

What difficulty is there in selling honey, when we compare it with the difficulty of harnessing the Father of Waters? It only requires determination, the resolution that we will **not leave a stone unturned** to convince the general public of the quality, the purity, the healthfulness of our product. We know, positively, that there is nothing better in the world than honey, and all we need to do is to convince the people that what we offer for sale is real honey from the blossoms, gathered by the bees and harvested by us according to the very best modern methods. Beekeepers, wake up! There is not a great crop of honey this year, but that is no reason why we should hesitate to push our product. All we need to do is to put the facts repeatedly before the public. I say "repeatedly," because it requires a repetition of the same fact, over and over again, to establish it. It took hundreds of years of repetition of the statement that the sun did not turn around the earth, before people became aware of it. People were accustomed to a low grade product, under the sweet name of honey, and they are slow to realize that the modern beekeeper can furnish them a very much nicer product, because he harvests it in a more sensible way than his grandfather did.

Those who sell the cheap syrups of commerce do not hesitate to advertise, to misrepresent, in order to sell their cheap products. But the beekeeper sits back and bewails his bad luck and imaginary "overproduction." It is not overproduction but underproduction which causes his troubles. If he had hundreds of tons of honey on his hands, he would do a little more advertising and would probably sell it at a higher price than he does now.

Now is the time to sell your honey. Do it like Mr. Birge when he undertook to bring about the damming of the great river, **do not leave a stone unturned** to succeed, and you will succeed.

THE JAPANESE HONEYBEE

We are in receipt of a Bulletin of 28 pages and two plates on studies of the Japanese Honeybee, by Y. Tokuta, in Chiba, Japan. It is quite interesting; but the conclusions reached are not in favor of the "indica-japonica." It appears that this bee cannot mate with the common honeybee, Apis mellifica, that it is on the decline while the common bee is on the increase in Japan. It does not defend itself against robbers so readily as the common bee. But it manages to fight better its ordinary enemy in Japan, a wild wasp, withdrawing within its hive when the wasp appears and balling it within the hive. It does not appear to rear any queen cells in case of the death of the queen and therefore often suffers from the drone-laying workers.

There are quite a few interesting remarks made about this bee, its size, length of tongue, color, etc. But nothing appears to make it a desirable bee.

This booklet is reprinted from the Bulletin of the Imperial Zootechnical Experiment Station of Japan.

THE INTERNATIONAL MEETING REPORT

The report of the International meeting will be quite a large book and as it contains many questions of interest it should be in the hands of all practical beekeepers. The price of it, together with a membership in the Internaional, will be $2. Send your orders to C. Vaillancourt, at the Ministry of Agriculture of Quebec. He will notify you when the book is ready. You may have it in either French or English.

As the world progresses we can less and less afford to get along without information from all over the world. We should remember that most of the late discoveries came to us from Europe. In beekeeping, the honey extractor and comb foundation were both European discoveries.

HONEY IN AUTOMOBILE RADIATORS

Reports continue to come in of the good points of honey and water, half and half, in automobile radiators, where a small percentage of wood alcohol is added while the mixture is hot and the foam is removed. This appears to do away with much of the tendency to gum.

The only objection comes where the joints leak and honey water filters into the engine. Concerning this, L. C. Dadant reports that, last winter, some one advised him to put a couple tablespoonfuls of powdered ginger in the radiator, as this would fill any possible crack and prevent leakage. He tried it and succeeded in preventing leaks. So he recommends it.

Ginger! If your machine lacks ginger, there is a good way to encourage it. Give it a little ginger at the same time as you give it a dose of honey and a little wood alcohol.

Let us keep on experimenting. Very probably in a few more years we will wonder that we ever did use anything else. One thing is certain; when you feed your radiator honey water, there is no longer any fear of overheating, for that mixture is exceedingly slow to heat, while the usual alcohol-water mixture gets hot and evaporates.

PRE-WINTER EXAMINATION OF BEES

By G. C. Greiner.

SINCE I changed the production of comb honey almost entirely to that of extracted, some twenty years ago, I always, until this fall, made it a practice to leave my supers on the hives until about the first week of October, well towards the end of the fall honey flow, which generally yields quite a percentage of the season's crop of fairly good amber honey. I did this to get out of my bees all there is "in 'em," in other words, get all the honey the bees would gather into the supers; from there into the extractors, then into the cans and finally to help swell my pocketbook at the market.

Advancing years, with the natural consequence of failing strength, induced me, or rather compelled me to change my former program to some extent. To make my closing days a little easier for me, I cut off a portion of my customary fall's work. At the time our late fall honey flow was under way, about the middle of September, I slipped my bee escapes under all my supers. That, of course, stopped storing surplus honey and consequently relieved me of handling that portion of my honey crop, which allowed me more time to prepare my bees for winter and do my other necessary fall work more leisurely. The financial point, reducing my customary revenues in that direction, had little weight with me; I am not as eager after dollars and cents as I was in my younger days.

When I examined my bees for the last time before placing them into their winter quarters, October 4, I met with a great surprise. I found them in better, more uniform condition than I ever knew them to be at this time of the year. Every hive was extra heavy; when trying to lift the back end of them they seemed to be "nailed to the ground," as our much lamented Dr. Miller described it, and the sight of solid sheets of fine, healthy brood in the center of the hives, gradually decreasing areas towards the sides, containing one or two full combs of capped honey was so pleasing it would make the heart of any beekeeper rejoice. To judge from all appearances, the starting period of this brood dated back to about the time I slipped my escapes under their supers. As this brood will all hatch before winter sets in, it will leave an ideal empty space for their winter nest, with from two to three inches of capped honey all around it. As the other feature of successful wintering, a hive full of young bees is secured by the hatching brood, I believe I am justified, if nothing unforeseen takes place, in predicting safe wintering and profitable springing of my bees.

Looking all these facts squarely in the face, the question presents itself with considerable force: Can it be possible that I have these many years extracted my hives too closely? Have I persistently robbed my bees of the means of brood rearing in the spring, which in turn produces the the honey gatherers of the white clover honey flow, and accepted a comparatively small amount of a second-class article for a more plentiful yield of prime stock the next season? It almost seems so; my recent experience points that way: Laboring under the impression that I managed my bee affairs to the best advantage for the benefit of the bees and my own financial interest, I have left the oft-repeated advice of our most prominent bee experts "plenty of winter stores with a liberal supply for spring use," unheeded.

With comb-honey producing colonies we need not fear scant supplies, winter or spring. Their section supers offer them no special inducement for storing honey. On account of the many stops and breaks in the little sections they had rather fill in all available space around their brood where they have more company. Even the spaces between the top bars and between frames and supers are generally chinked full of honey. Thus it happens that the hives of comb honey colonies almost always come up to the "nailed-to-the-ground" test.

But with extracted honey colonies it is different. Having empty combs with uninterrupted areas all over the frames for doing their work, they seem to prefer them for storing the incoming honey, instead of depositing a little here and a little there, rounding a corner here and a corner somewhere else, as they have to do when surrounding the brood with honey. In their eagerness to store the greatest amount to the best advantage they stick to those large areas in their supers and neglect to provide their home with the necessary stores. Consequently we find many nice, solid slabs of honey in our supers when gathering the crop.

To the beginner and less experienced beekeeper, and possibly to some of us older ones, too, it is a strong temptation to send all of these heavy combs of honey through the extractor, with the result that our extracted honey colonies are more liable to be short of stores than our section producers, when winter sets in. During my extracting operations, some twenty years, I have been many times compelled to exchange combs of honey for empty side-combs of needy colonies. This may do very well so far as it goes, but it is at best only an emergency makeshift. It discourages the home affairs of the hive and does not leave the brood-nest in such acceptable shape as it is when bees have a chance before winter to prepare it according to nature's dictates.

It would hardly be fair to present the bright side of the picture in glowing terms and not give the other side at least a passing mention. When I made my pre-winter examination, October 4, as described above, I found two hives not as promising as the rest; one was queenless and the other was badly tinged with American foulbrood. The former had not a sign of eggs or brood, but was very strong in bees. Late as it was, I decided, as an experiment, to save them, if the introduction of a queen would accomplish it. I sent for a queen the same day, which arrived after two or three days, and after being in the hive 24 hours, was accepted when I liberated her.

With the other hive, the foulbroody one, I made short work; I cured its inmates for all time to come by the sulphur method, and annihilated its contents by fire and smoke. For the last three or four years I have found this the most effectual, quickest and safest way to get rid of American foulbrood, or any other disease. But this belongs to another subject.

Before closing this article I wish to relate a little incident that may have some bearing on the above subject. A beekeeping friend of the younger generation, who depends like myself, on his bees for his bread and butter, called on me a few days ago. After the usual salutations and social greetings, a little bee conversation of our own was next on the program. My honey house was the first place, where tools, appliances, stacks of yet-to-be extracted honey, market honey containers, etc., were inspected and discussed back and forth. Then we stepped out among the bees, where other subjects came up for discussion, and as our conversation drifted to winter stores, I jokingly remarked, pointing to the hives: "Lift one of them." My hives being of the cleated kind, which furnish good grips for handling, my friend reached down to comply with my request. After his first attempt he looked up at me in wonderment; but his second attempt raised the back of the hive from the stand. Without saying a word, he reached over to the next hive with the same result; then to the next, and the next, and so on the whole length of the row of nine or ten hives. Seemingly not being satisfied, he stepped over behind the other row and came back, lifting in the same way as going down. When he got back to his starting point, from where I had watched him doing his lifting, he said: "Your bees have twice as much honey as they need for wintering and will have lots left in the spring." My reply was: "That is just what I am after; it is an easy matter, if rightly arranged, to transform that honey into bees." But this, too, belongs to another subject and will be treated later on.

Iowa Annual Meeting

The Iowa Beekeepers' Association will hold its annual meeting at Des Moines, December 17 and 18. This is one of the series planned by the League and there will therefore be an unusually fine program. This will be available later.

ON THE TRAIL OF FOUL-BROOD IN MICHIGAN.

By B. F. Kindig.

DURING the year ending June 30, 1924, there were 2,057 apiaries inspected in Michigan, totalling 19,298 colonies, of which 3,182 or 16.5 per cent had American foulbrood. There was only 1.9 per cent of European foulbrood.

From these figures it is quite obvious that the real problem is with American foulbrood. With the introduction of Italian queens and with better beekeeping practice European foulbrood is rapidly ceasing to be a factor in Michigan. There are very few, if any, commercial apiaries in the state that are seriously troubled with it. It still lingers among the neglected colonies of black and hybrid bees and will doubtless be found in such apiaries for many years to come. During the past four years, our attention has been directed almost entirely toward the eradication of American foulbrood, leaving the European largely to the beekeeper himself, as we are powerless to control the disease unless the beekeeper practices good apiary management and has Italian stock.

There have been a few exceptions to the above where commercial beekeepers were operating in an area of light soils which did not produce a good, early, summer honey flow. Moving from such locations to heavier soils, together with a rigid culling of the poor queens and requeening with Italian stock in all cases has reduced Europeon foulbrood to a very minor trouble.

Twenty-six per cent of the apiaries visited had American foulbrood, including a considerable number of apiaries visited from two to four times in an effort to help the beekeeper get rid of the disease which was found at each visit. It is very probable that the percentage of apiaries affected in uninspected territory is much less than the ratio given above.

Outside of the clean-up area in which the disease is being eradicated as fast as possible, inspections are made only where we have reason to believe that disease is present and this, of course, results in our report showing an abnormally large percentage of diseased apiaries. The inspector is not seriously needed where disease is not present and therefore an effort is made to do our work only in areas where disease is a menace. In the quarantined area in the northern part of the state, all bees are inspected when covering the counties for the first time. At subsequent inspections only such apiaries are inspected as lie adjacent to diseased apiaries or which were affected at the last inspection. When a diseased apiary is treated and no disease is found for two years it is then considered safe for the future and is not again inspected unless we have reason to believe that disease has reappeared. The following of this plan also tends to make the ratio of diseased apiaries abnormally large.

At the present time, we believe the whole of the Upper Peninsula and Cheboygan and Otsego Counties in the Lower Peninsula to be free from American foulbrood. Very considerable progress has been made in Emmet, Charlevoix, Antrim, Kalkaska and Grand Traverse Counties. It is expected that the inspection in the spring of 1925 will show all of them excepting Grand Traverse practically free from disease. There will be a few apiaries in which the disease will doubtless carry over and may require inspection for even two or three years before we are positive the disease has been eradicated. It was planned to cover, in 1924, all of the Lower Peninsula as far south as the second correction line, which is the south boundary of the tier of counties lying between Manistee and Iosco Counties. A quarantine was placed on this area with the expectation that it would be possible to cover the entire territory during the season of 1924. However, the very cold and backward spring prevented even the re-checking of previously inspected territory until it was so late that the plans for inspecting a large area had to be given up.

Disease has been spread more or less across our state lines between Michigan and Ohio and Indiana. In order to stop the disease from spreading from one state to another, a meeting with the Apiary Inspectors of Indiana and Ohio was arranged with the end in view that the states affected make a thorough inspection and clean-up in the counties adjacent to state lines. Since the season was so unfavorable for inspection in Northern Michigan, considerable time was spent in work particularly along the Ohio line. St. Joseph County, which is adjacent to the Indiana line, was thoroughly gone over and most of the disease eradicated.

The beekeeping industry has not yet fully recovered from the depression which overtook it in 1921. The honey crop during the last biennial period has been below the average and prices have not been very encouraging. During the summer of 1924 there were signs of a revival of interest in beekeeping. During the last four years a large number of apiaries have been neglected and thousands of colonies have passed from the hands of discouraged beginners into the apiaries of commercial beekeepers. The gradual elimination of the small beekeeper is steadily going on, due to a large degree to his inexperience with bee diseases. Just what effect the eradication of bee disease in the northern part of the state will have in this connection, it is impossible to forecast, but it appears that the amateur beekeeper will be in a much better position than in the parts of the state where bee diseases are prevalent.

SELLING HONEY

By Geo. W. Pillman.

Many of us can remember back 30 and 35 years ago when comb honey retailed for as little as 25 and 30c the section, and comb honey is retailing for the same price today. When we compare this price with the skyward mounting of other commodities, and with hod carriers getting $10 per day, and skilled labor in proportion, it would seem time for the beekeeping crowd to get out their little note books and do a bit of figuring with regard to labor-saving equipment, economy of production, and the securing of better prices for their product. If we would make our line of production something more than the piker end of the business world, it is important that we should move to prices comparative to the increase in wages of labor, and the increase of the things we have to buy.

I produce extracted honey, and put it up in quart jars and 10-pound containers. Regardless of prices quoted elsewhere, I have for several years past been retailing the quart size jars for $1. I have been selling my honey in case lots to grocers in competition with the lower prices of others for $9 per case of 12 quarts. My job lot prices for the crop in quart containers would not be lower that $8 the case, 10-pound pails $2.50 delivered, 60-pound cans $9 f. o. b. or $10 delivered. I have managed to secure these prices in what I believe to be one of the lowest and most overstocked honey markets in the world, St. Louis. I figure with the most economical management and equipment, that honey cannot be produced in my locality, allowing a fair compensation for labor expended, and sold for less than the prices quoted above. If the honey producers, large and small, would get together and arrange their prices somewhere near these figures, I would be pleased, for it would reduce my selling troubles, and they, too, would be pleased with the better prices.

Missouri.

Lineburg to Lake Forest

Bruce Lineburg, who has been associated with the investigators at the Bee Culture Laboratory, in Washington, D. C., has left to accept a place as Professor of Biology at Lake Forest University, Lake Forest, Ill. Lineburg, Nelson and Sturdevant, together, published the paper, "Growth and Feeding of Honeybee Larvæ," which is a good contribution to our knowledge of the bee larva. It is to be hoped that he will continue his interest in the bees in his new position.

A GIRL BEEKEEPER OF WASHINGTON

By Harriet Geithmann.

HELEN STEINER'S Olympian Bee Farm is located in the Grays Harbor County, a hundred miles from Seattle, twenty-five from Olympia, the capital of Washington, and six miles from Elma, the nearest town. Helen Steiner is Washington's 22-year-old beekeeper. In June, 1921, Helen took three hives of Italian bees and the sound advice of a government expert in bee culture and leased her location, an acre of ground among the blackened stumps of Grays Harbor County. A stone's throw away stands a Washington forest of Douglas fir, pine and cedar, within which chug the logging trains whistling on their way. Beyond are the purple hills of firwood which furnish her bees with plenty of honey. As long as the fireweed lasts, which is generally from four to six years, Helen Steiner will lease her present location. The Grays Harbor County is particularly well adapted for bees because of the fogs and spring rains, which insure good deep roots and therefore a healthy honey flow. A stream runs across one corner of her farm. Among the stumps stand her hives, over fifty of them, some of which are four stories high. At the end of this year's honey flow she plans to add at least twenty-five more colonies to her farm.

For eight months out of the year, April to November, Helen Steiner, a twentieth century frontierswoman through and through, lives on her ranch in a wee honey house that accommodates her automobile, her books on bees and herself, in addition to an elevator that lifts the honey from the ground floor to the attic, where it runs from the extractor down into the eighty-gallon settling tank below. No wonder her house smells to high heaven with honey and buzzes with bees coming and going. Even the floor is richly embroidered with dead bees. For company Helen has Bonza and Foxy Lass, two high-spirited. Collies, and two cats to keep the place free from mice besides a handful of discouraging blooded turkeys. Though she has a 22 rifle and a revolver, she does not need them except for shooting tin cans off the fence posts. Her neighbors down the highway, are interested in everything she does. Fortunately one of their little girls spends

Miss Steiner with section of a bee tree.

the night with Helen for company and invariably she sits bolt upright in bed about midnight and screams, "Helen, I'm stung!" thus furnishing the Olympian Bee Farm with a bit of homely comedy.

In November Helen makes a "bee line" for Seattle, where she works as a stenographer for four months, earning more capital to buy more bees.

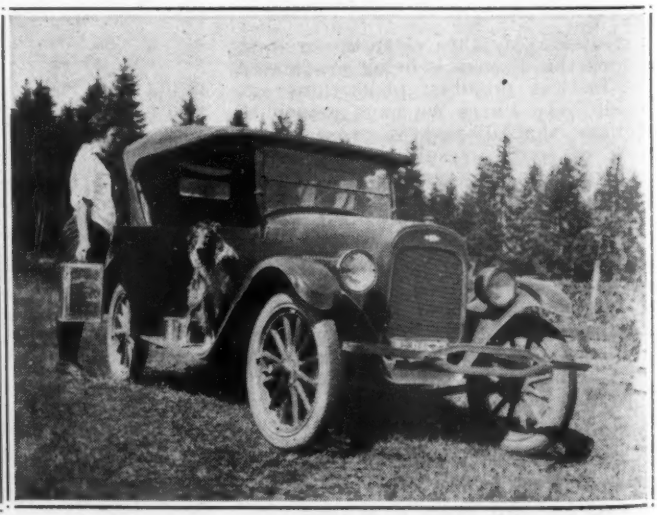
She drives her touring car to and fro and does all her own advertising and merchandising. Her glasses of honey are all neatly labeled with individual stickers on which are printed crimson shields with the name of her brand, the Olympian Honey, her own name and address and the slogan, "Quality Counts." Helen believes that the producer's name should always stand behind his product. She already has over fourteen groceries in Seattle using her honey exclusively. She aims to build up a retail business of her own instead of selling her output to wholesalers as the majority of beekeepers do. She specializes in extracted honey only. Her product is retailed at $2.25 per dozen 11-ounce jars, $3.88 per dozen 22-ounce jars and $5.75 per dozen 44-ounce jars.

Her total output for 1923, a lean year, was 1,500 to 2,000 pounds from thirty hives, and this year she plans on two to three tons. She has harvested as much as 400 lbs. from one hive and 300 lbs. of honey from another colony with one queen and six full depths.

Miss Steiner does all her own work on her bee ranch and knows that she can take care of at least 100 hives herself. She has set no capacity for her farm but aims to keep on expanding even up to 1,000 hives if that is practical. She overhauls her colonies in the spring, toils with them all summer and packs them away in November in tar paper with plenty of sphagnum moss on top of the hives, after she has given each of them sixty pounds of honey to live on all winter. She buys her hives knocked down and puts them up herself. While her queens are now being shipped to her from the best queen breeders in the East she is planning to rear at least 80 per cent of her own queens. She does her own artificial swarming by taking about four good frames of bees from a strong, healthy colony and putting them into a new hive with a queen.

Helen harvests three distinct crops of honey from her apiary. The vine maple crop is harvested in May, after which comes the clover and then the

Ready to bring in the harvest.



Loading the car with honey for market.

fireweed late in July. It all depends upon one's individual taste which of the three kinds of honey is the best. They are all best.

At both annual fairs, the Grays Harbor County Fair and Western Washington Fair at Puyallup, Helen exhibits her bees and honey and manages to capture more points than any of her competitors and to run off with the honey sweepstakes. This year she was elected Assistant Superintendent of the honey department at the Washington Fair. In her exhibit this year she had a section of a cedar tree which she captured at 4:00 one morning. Forty feet from the ground was a six-inch hole twenty-feet long from which she took 30 pounds of honey. She also planned to shoot a young bear back in the hills for her exhibit, but had to content herself with a big teddy bear in blue overalls stealing honey from the top shelf of mother's cupboard.

Miss Steiner was appointed secretary of the Washington State Beekeepers' Association as well as the secretary of the Peninsula Beekeepers' Association, and still she is only standing on the first rung of the ladder. The pioneer strain in her is always clamoring for expression. She does not believe in working for others, for it destroys all individuality. Her silent partner in the Olympian Bee Farm is her mother, Dr. Minnie Steiner, of Seattle, whose encouragement in times of stress and storm has meant a great deal to the young beekeeper.

After seeing the Olympian Bee Farm in operation with its sign on the highway reading: "HONEY, WE PRODUCE IT AND WE SELL IT," and talking to the energetic beekeeper herself for even an hour, sampling her honey and watching her progress year after year at the county fairs it is not hard to prophesy a brilliant future for Helen Steiner in the honey industry of the Pacific Northwest.

Beekeepers' Short Course at Ames

The regular beekeepers' Short Course will be held during the Farmers' Home Week, February 2-7. The program this year will be varied somewhat in that it will give more time to demonstrations. In the past the beekeepers have felt that the program was well worth while and it is aimed to make it even better this year and it is hoped that more beekeepers will avail themselves of the opportunity.

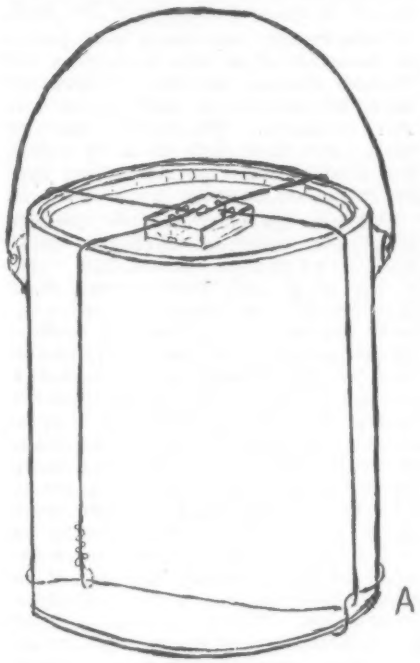
Bertholf to Western Maryland

L. M. Bertholf, who has been engaged in a study of the development of the honeybee larva at the Washington (D. C.) Laboratory, has resigned his temporary appointment to accept a position as Instructor in Biology at the Western Maryland University, Westminster, Md. He will also continue graduate work at Johns Hopkins University.

PAILS OF HONEY BY PARCEL POST

By Frank Van Haltern.

In the July number of the Bee Journal, page 333, I described my method of wiring the lids of honey pails for parcel post mailing. This system depended upon the "ears," to which the bail is fastened, to hold the wire on, and works fine when the



The finished wiring.

"ears" stick out far enough. However, the last batch of pails I got had flat "ears" that would not hold the wire. To overcome this I devised a different method of wiring, as follows:

Cut a wire 72 inches long and set the pail exactly in the center of it, bending each end up at the sides of the pail. About a half inch up from the bottom bend each wire at right angles, as shown at "A," and run it half way around the pail and hook through the elbow formed by the other wire. Thus, if the right hand wire goes around the pail on the distant side of the pail, the left hand wire comes around on the near side.

The wires are now bent upward along the side of the pail, drawn tightly over the top, given a one-quarter twist together and brought down the side of the pail again, the ends pushed downward under the encircling wire, pulled up tightly and twisted about themselves. Thus, there are four wires running up over the edge of the lid and equally spaced. Where the wires turn in each other above the center of the lid, a small block, 1½ inches square by 1 inch thick, is pushed under them. This serves to tighten the wires and hold the lid tight. Lifting by the block, so as not to dent the lid, drive four double-pointed tacks to hold the wires to the block.

The wire must be heavy enough not to stretch, yet pliable enough to handle easily. I have not mailed as many pails by this method as by the old, but what I have sent seem to hold just as good as by the first method.

Iowa.

THE LEAGUE LAW BOOK NOW ON SALE

"A Treatise on the Law Pertaining to the Honey Bee" is a volume of 88 pages just published by the American Honey Producers' League. It is the work upon which the legal department of the national organization has been engaged for the past three years. The editor is Colin P. Campbell, LL. D., who is the general counsel of the League. In the pages of this little book are brought together all the law of the English-speaking world affecting the status of the honeybee or the rights and liabilities of the owners. It answers the beekeeper's questions on his right to follow swarms to another person's property, his liability for damage in case livestock or persons are stung; his rights in the case of injury of shipments of bees when in the hands of common carriers, and an outline of the laws of the various states on apiary inspection.

One of the most important subjects is the discussion of remedies for injuries done by bees. It is stated that where someone suffers loss as a result of horses being stung and running away, the beekeeper may either be sued for damages, or, if the facts warrant, enjoined from keeping bees at their present location.

This book is substantially bound in cloth and is a permanent reference book of value. The price is $3.00 per copy, less a 20 percent discount for members of the League. Nonmembers may secure the book and pay their dues from now to the end of 1925 for a total of $3.40. Address Secretary American Honey Producers' League, Capitol Annex, Madison, Wisconsin.

The Order of the Honeybee

The "France Apicole" for September publishes an interesting account of the establishment of the "Order of the Honeybee" by the Duchess of Maine, in 1703. The oath taken by the members was as follows:

"I solemnly promise, by the bees of Mount Hymettus, fidelity and obedience to the perpetual directors of the Order, to wear during my life the medal of the Order, and to fulfill all the requirements of the Order. If I fail in my promise may honey change for me into gall, beeswax into tallow, flowers into nettles and may I be stung by wasps and hornets."

The Duchess of Maine was directress of the Order and the knights, to the number of 39, wore a medal showing a honeybee flying towards her hive. But it appears that not one of these medals is now known to exist.

THE BING CHERRY AND THE HONEYBEE

By Elihu Bowles.

THE cherry orchards of the Pacific Northwest were planted with no knowledge of the self-sterility and inter-sterility of the three commercial varieties, Bing, Lambert and Royal Anne, also with no knowledge of the relation of the honeybee to the securing of a crop of cherries. And in this ignorance of absolute essentials in the cherry industry the growers blundered along for ten to twenty years and on account of this ignorance they lost no less than half their crops for the whole time. The chief reasons that even the 50 per cent crops were secured, were purely accidental and entirely apart from the efforts and knowledge of the growers. The first reason was that honey production was profitable and that beekeepers scattered their hives throughout the orchard districts. The second reason for at least a part crop was the benevolent rascality of the nurseries in mixing in seedlings, Woods, Tartarians, Republicans and other inferior sorts with the higher priced Bings, Lamberts and Royal Annes, the only three cherries that have become popular in this section of the country.

Of course, we know now that neither the bees nor the scrub stock would have done the work alone. It took two working together, the apparently worthless tree producing the pollen, and the bee placing it in the blossoms of our fancy sweet cherries.

Nineteen years ago I planted ten acres of Bings near Prosser in the Yakima Valley, unsuitable soils having reduced it to six acres. But I was one of the fortunate victims of the treeman's tricks and found sufficient pollen in parts of the orchard, and had partial success for nearly the whole time.

It was about ten years ago that the Oregon Agricultural College began making experiments and important discoveries in the pollination of cherries. And near the same time(but entirely independent of, and without the knowledge of the Oregon studies. Mrs. Bowles, who is a sister of Prof. Wallace Park, a tree specialist of the University of Illinois, arrived at the conclusion that nearly the whole trouble with the cherry industry was the failure of the blossoms to become fertilized. At that time I was too much absorbed in studying and preventing frost injury to see the data before me in pollination. But soon it became plain, and now, with the last ten years observation and experience, it seems unbelievable that rational people, trying to produce cherries, could face such convincing facts in pollination which every orchard presented, without being able to see and understand at once.

But everybody moved in darkness. The planting of cherry trees stopped. Many fine orchards were grubbed up. Others remained standing but worthless. Some orchards bore crops, while in others one part would be productive and the other part barren. Some of the best orchards were ruined by the owner, who cut down all "those worthless trees" but who later found that his only cause of former success was the "worthless trees" in co-operation with the bees.

Now nearly everybody who plants a cherry tree in this corner of the United States, has the elementary facts of pollination and avoids former mistakes. He knows that he must grow the right kind of pollen and that he must see to it that bees are in the community to distribute it.

All are agreed that bees are the only pollen carriers worthy of mention. Abundant observation, together with some experiments, show that neither the wind nor other insects are worth anything. Scores of plants depend upon the wind; but in this list the cherry is not included. Our winds here at blooming time are nearly all from the west, but in spite of this one-direction wind, the loads of fruit show the pollen has been carried against the wind the same as with it. If the wind did the work the heavy loads of fruit would be on the east side of the pollenizers, instead of being evenly distributed in every direction, as is the condition everywhere. Nearly all the work of the bees is done while the wind is not blowing, so the wind does not hinder the even distribution as to direction, by the work of the bees.

Our record crop of cherries was fifty tons, and my belief is that on one certain day—the greatest pollenizing day I have ever seen—the bees carried the pollen for half the crop, or Twenty-five tons. At that time the honey industry was at its height, and there were many colonies of bees in the community. But the spring was too cold, too rainy or too windy for the bees to do good work, except on one single day which was still, clear and warm. From eight in the morning till five in the afternoon, the humming of the bees was so loud it could be described only as one continuous roar. It seemed we had all the bees for miles around in every direction. We had been fearing a light crop on account of the poor work of the bees up to that time; but I can best describe our feelings at sunset by saying it was as though millions of little gold diggers had come to extract gold from the soil, doing all the work gratis, and departing with a "Thank you, Mister, we've had a fine time." It must be kept in mind that this applies especially to the Bing cherry, the most popular of the Northwest and the very hardest to pollenize, and it also applies to the Lambert and the Royal Anne. Experiments by the Oregon Agricultural College show that not one of these cherries will pollenize itself and neither is it pollenized by either of the other two. Common observation agrees with these tests.

A few points should be noted in the pollenization of the Bing.

The sterility of the Bing runs very close to 100 per cent, probably above 99½.

Added to this difficulty, most pollen that would otherwise do the work, comes out too late unless forced by a sun reflector on the north side of the tree—a wall of boards or canvas—the last few weeks before blossoming. The bees quit the game early, even before the blossoms show age. Many have failed to get results in placing pollen in their Bings only because they were a few days late. Tons of blossoms do no good unless they attract the bees at the time they are working the Bings.

Sometimes growers have difficulty in determining whether the crop failure is due to frosts or to proper conditions for bees to do their work. Frosted cherries turn dark, while the non-fertilized are more yellowish color. If the trees are loaded on top and naked near the ground, the trouble is frost. A scattering of cherries from top to bottom, indicates sterility. Frost effects may occur for a period of nearly six months—from the December freeze to the last of May—the most common time being the ten days before the blossoms open till twenty days after the petals fall. The non-pollen effects come with a rush the first ten days after the blossoms are brown, the few fertilized cherries standing out vigorously over a sea of sickly little fellows unable to kick out of their shells.

The bees must have skilled assistance to do their work properly. If there is too much pollen in one place, they overdo the job, if the weather is favorable. But the bee doesn't get far with her load of pollen, till it is brushed off and her new load is merely the worthless dust from the Bing stamens. I have seen Bings next to a pollenizer with branches breaking, while the second tree had only half a crop. One of our most important jobs is what we call "artificial pollenizing," merely distributing the pollen to suit the habits of the bees. With the haphazard distribution of pollenizers as we have in our orchard, it takes about four or five days with three men to do the work, but this increases the tonnage ten to fifteen tons, with a full crop.

In the foregoing discussion I have tried to touch only the points of interest to the bee men, and I have therefore mentioned only a few points in the general subject of cherry growing.

Washington.

Apiarist's Report for Iowa

The 1923 copy of this report is now available and is full of useful material for beekeepers. These reports are becoming more valuable each year. Copies may be had on request. Write to F. B. Paddock, State Apiarist, Ames, Iowa.

HEREDITY OR ENVIRONMENT?

How Far Has the Progress In Honey Production Been Due To Breeding and How Far To Improvements In Conditions and Management?

By Hy. W. Sanders.

THE bee journals have, during the past couple of years, contained a great many references to the difficult problem of improvement of apiculture through the factor of heredity; and one of the usual arguments on the part of those who believe that this has been accomplished has been to point to the records of large average yields which feature modern beekeeping. It is at least a legitimate question to ask how far the progress in honey production has really been due to the effects of improved breeding, and how far to the great improvements in conditions and management.

In the first place, let us take the matter of locality. Older beekeepers will remember that in the controversies that marked the "comb-honey" period the experiences reported by the apiarists of the Nineties were often so flatly contradictory that the term "locality" came to cover a multitude of differences. It was assumed that locality was perhaps the most important factor in beekeeping. Now we know that the United States may be divided into regional lines in any of which we can state almost to a nicety what time the main honey flow is to be expected and to advise as to the general plan of management that will promise best success. Within the past few years, moreover, there have been two new factors, in the problem, of great importance: the first being the general cultivation of sweet clover, and the second the opening up of vast tracts in Canada and the northwest of the finest kind of beekeeping country. It is quite a possibility that within a few years more we may see bees being shipped in packages from the south, clear away to the Arctic Circle and making crops of honey up there that will beat all records.

So, in the first place, we have the fact that beekeeping has gone north and west and has everywhere obtained a great asset in sweet clover.

Now let us take the matter of equipment. Hives are everywhere larger. The use of the Dadant-Quinby hive has increased largely, and its twin, the modified Langstroth, as well as the Jumbo, has also been widely adopted. The remainder of the bee world uses the ten-frame Langstroth, with the exception of a few who use the eight-frame in two stories, thereby making as big a hive as the Quinby. The use of larger hives and the abandonment of reversing, crowding, and restricting of all sorts have given the bees a chance to show what they could do, and the best of the colonies have naturally broken the records. Then, again, there is a universal use of full sheets of foundation, and of better foundation than any that has ever yet been made. Through better made hives and better extracting machinery the honey crop is taken off faster and more efficiently and every large honey producer knows that the bees will produce more when combs are promptly and thoroughly extracted. Another factor that must be classed under the head of equipment is the truck and the automobile, which by their speed enable the beekeeper to give far more care to his apiaries. Less time on the road means more time in the yard. All of these improvements in equipment have increased yields.

Thirdly, there is the question of management, and it is here that the great advance in beekeeping has been made, notably in better wintering and spring management. Giving the bees twice and three times as much stores as used to be done, especially in the critical days of spring; giving them better shelter and better insulation against the cold; giving them younger queens, and discarding all weak colonies, and the abandonment of all swarm control methods by manipulation have been the big features of management which have increased yields.

Here is the matter in a nutshell: a beekeeper with a proper outfit can take care of half a dozen ordinary Italian queens, the kind that sell for two dollars apiece, and in two or three years have fifty good colonies. Now then, with those bees, IF he is in really good territory, IF he has a really good season, and IF he knows how to handle bees, he can produce anything from two hundred pounds of honey per colony upwards.

That is the net practical result of our fifty years of breeding bees, and until we find out how to control the mating of the queen bee and start to breed from selected drones as well as selected queens, the factors of environment will undoubtedly outweigh the factors of heredity.

California.

Heart of America Officers

A meeting of the Heart of America Beekeepers' Association, Kansas City, Mo., was held October 19, 1924, for the election of officers to serve for the ensuing year. All of the old officers were retained, as follows: Dr. Chas. Sandy, President; Arthur Allen, Vice-President; W. F. Tilton, Secretary; F. A. Schumacher, Treasurer; J. F. Diemer, Advisor.

QUEEN MAILING AND INTRODUCING

By Yasuo Hiratsuka.

It is a rather troublesome job to let escorts one by one into a mailing cage. At times we do not find bees of suitable age in a small mating-box, and they are all too old to be good escorts, so I prepare mailing cages, with escorts and candy, one or two days previously.

Take one frame or so of bees. When it rains, I take them into the house. Stand the frame against hive body, or any other convenient support. Take up one after another mailing cages with candy, let in a sufficient number of escort bees of ideal age, and close the hole by means of a cork or any other convenient material. Do not let queen in at this time. Store those prepared mailing cages, ten or more, for a day or two after preparation, in a cool place, taking care to avoid damage from ants. Whenever you want to send queens, it should be at least five hours after preparation. Put queens in those prepared cages, one queen to one cage, and take care not to let out bees from the cage.

In this treatment I have no queens balled by bees in mailing cages, in years of experience. This method is practical and efficient. If it is for short transit, the age of the bees is not important. You may take them at random from only one hive. Where queens which you are going to send are kept in an outapiary you may bring your mailing cage, prepared in your home, and save time.

Queen Introducing

Remove the frame on which the queen is found from the hive, taking off the queen. In her place I put the new queen. Care must be taken that the bees are not frightened and excited. If the new queen is frightened put her in a queen cage and press its opening on the comb so that the queen can get to the comb, and let her sit on the surface of store or brood on the comb, and then let her out. If the bees are frightened, smoke them a little. If the bees and new queen are all quiet on the comb, put them back and the introduction is over.

If there is no brood and no queen cell in the hive to which you are going to introduce queen, you may let her in the entrance without smoking. I practice this with mating hive from which virgin is lost.

It is said that success of introduction of queen and uniting of bees is in equalizing of odor. I deny it. If equalizing of odor causes queen to be accepted, is the odor of queen introduced by smoke method equalized at a moment? It must not be so. Or does smoke equalize the odor? I cannot think so. They should fight or ball after smoke is out, if they were unable to distinguish different odors, owing to the smoke. If they choose to accept new queen it is from necessity.

MEMORIES OF LANGSTROTH

No. 2

By C. P. Dadant.

IN my previous article on this subject, I mentioned a visit which I paid to Mr. Langstroth, in August, 1885, in company with Chas. Muth and at his urgent request, for Muth was very desirous of completing the proposed arrangement between Langstroth and ourselves for the revision of "The Hive and Honey Bee." Mr. Langstroth then lived at Oxford, Ohio, with his daughter, Mrs. Cowan. His son-in-law, Cowan, was a traveling man and rarely at home.

Mr. Langstroth received us in his study, replete with bee books. He welcomed us heartily, and after a short talk, drew out of his bookcase the first volume of Della Rocca's "Traite Complet Sur Les Abeilles" (Complete Treatise on Bees), a book in the French language, and asked me to read him Chapter II of Book 1. I thought he was doing this to test my knowledge of French (perhaps he was) and I felt very sure of myself. So I read, as he requested. But when I came to page 312, I found a word which I had never seen in any language; "molivihde." It evidently was meant to describe pollen, but Mr. Langstroth thought I might be able to give him information as to its use, by other writers, in French or other Latin languages.

It may interest the reader to quote the passage of Della Rocca containing the description or entymology of this word. But first I must tell something about this writer.

Della Rocca was an abbot, Vicar-General of the Island of Syra, one of the Cyclades, in the Egean Sea, southeast of Greece. His book was published in Paris, in the French language in 1790. It consists of three finely leather-bound volumes. As a matter of course, he was uninformed on many questions which are clear to us today, although very much up-to-date for the Eighteenth Century. Here is a translation of the passage in question:

"We must conclude that flowers in general, of any tree or plant, may serve as food for bees, but not equally. Some produce more honey than wax, others more wax than honey; others still furnish neither wax nor honey, but another sort of food which is called in Italian 'il pane delle api' (the bread of bees), in French 'la matiere en cire' (the wax-producing matter), and with us in Modern Greek, 'molibdida, molibida, or molivihde,' an expression which we shall use in this treatise, whenever we wish to mention it. This word is derived from the Greek 'molubos,' which means lead, or 'molubdis,' a globe, a ball or a sheet of lead, from which we have formed this word; since the substance which the bees carry on their legs, and which we call thus is of oval shape and usually of leaden or gray color."

We might conclude from this that Della Rocca was deceived about the use of pollen and that he thought the bees made it into wax, a very common opinion, even at this day. But this is incorrect. He evidently thought that the bees carried two different substances on their legs, for on page 20 of Volume III, he wrote:

"The molivihde of which we speak serves only to feed the bees and their brood. It does not enter into the composition of true beeswax, unless there happen to be some some small parcels of wax in it, which they may separate with their mandibles, their tongues or their claws."

He does not appear to be very positive as to which is wax and which molivihde, of the material they carry in, but holds that bees have two stomachs, one for honey, the other for wax, from which true wax is extracted. When one reads these descriptions, which are so close to the truth, and yet miss it, one wishes that such a capable man could come back to life, so we might explain to him that which he sensed, but did not clearly discover.

Mr. Langstroth donated this work of Della Rocca to us, at the time that our contract was made with him, together with the work of Reaumur, that of Bevan, and the first volume of Huber in paper covers. Of this work my father had owned a copy previous to his coming to America, and our regretted friend, Mr. Bertrand, of the Revue Internationale, had also donated to him a full two-volume bound copy. Of course we prize these books highly. The Della Rocca work contains some pencil-marked annotations by Mr. Langstroth.

While speaking of books, I should add that the most valuable book, to us, is Mr. Langstroth's "interleaved edition" of the Hive & Honey Bee." This is a copy bound with a blank page between each page of the text, to enable the writer to make remarks and corrections, for future editions. Another interleaved edition of his books I saw in the hands of one of the leading Wisconsin beekeepers. But the annotations in it are in the handwriting of Mr. Langstroth's son, J. T. Langstroth, who died in 1870, at Greenfield, Mass. He was the only son of Mr. Langstroth. But let me return to my visit at Oxford.

We lunched at his home that day, with him and Mrs. Cowan, and after lunch, about 2 o'clock p. m., we went to the apiary; for in spite of his sickness, he still had bees, five colonies. The summer was very dry and he was feeding them, giving them sugar syrup, regularly every afternoon, about 4 o'clock. He called our attention to the fact that no bees were flying about the pans in which he gave them food. A couple of hours later, he prepared about a teacupful of sugar water, and we again accompanied him to the apiary. There were dozens of bees then flying about the shallow pans. He said:

"See, not only do they know that I am to feed them, but they seem to sense the exact hour when the feed is to come. They will take this away lustily and will again be quiet until tomorrow at the same hour, for I have been feeding them very regularly at the same hour for several weeks, without fail."

This shows with what care Mr. Langstroth made his experiments upon bees. That is why so few of his remarks on the habits of bees could be criticized. He had a journal, but I never did see it. It would have been valuable, had it been written in a legible hand; but Mr. Langstroth, like many great men, Horace Greely for instance, had a handwriting which could not be read, even by himself, when it got "cold." A number of his notes in the interleaved edition in my possession are about illegible.

When we left the Langstroth home that evening it was with the understanding that he would come to Hamilton to make a contract with us and have some sort of plan as to the manner of revising, or rather re-writing the book. He proposed to leave it entirely, or almost entirely to us, since he had not practiced any of the modern methods, which were, however, nearly all based upon his teachings, with the addition of the new discoveries such as the honey extractor, comb foundation, etc. He was to pass upon the final proofs. Alas! "Man proposes, but God disposes." He did not make a single correction, for he took sick again of the same "head trouble" and finally became so weak mentally in his older days that, when partly recovered he permitted James Heddon, who was indeed a bright man, to convince him that he, James Heddon, had invented the best hive, better than his own invention. It created a furore in the bee world, for a few weeks, perhaps a few months; but the Heddon hive is now practically unknown to the beekeepers, while the Langstroth name will probably live as long as bees are kept. But more of this later.

Mr. Langstroth was an opponent of tobacco. In his book, first edition, he wrote, "when they recover from the effects of tobacco they not unfrequently remember, and in no very gentle way, the operator who administered the nauseous dose." In a later edition he had written "No genuine lover of bees ought ever to use the sickening fumes of tobacco." This last sentence was retained by us in our revision; not because we objected to the use of tobacco ourselves, but because we believed that it was actually irritating to the bees. It was not until after the writer's visit to Switzerland, where nearly every beekeeper uses a pipe to subdue the bees, that we quoted Mr. Langstroth's words on that subject, with a reservation (The Honey Bee,

21st edition, paragraph 395.) Mr. Dadant, senior, used tobacco only when in company with tobacco users, and his recommendation to his son was, "You may use tobacco occasionally, but don't make a habit of it." Perhaps the rational view of tobacco is that taken by Lord Lytton, who, in his "Lady of Lyons," gives the following conversation between Melnotte and Beauseant, when Melnotte offers the latter a pinch of snuff: "No, your highness, I have no small vices." "Bah, if it were a vice you'd be sure to have it." The greatest objection to tobacco comes from the insistence of some smoking men to force the unpleasantness of their smoke upon people who dislike it; thus interfering with every human being's right to pure air.

In my next letter I will tell of Mr. Langstroth's visit at Hamilton and subsequent events in his life.

SHIPPING COMB HONEY

By F. H. Hauck.

THE carload shipper should be particular about the freight car into which he loads his honey. This applies to extracted honey as well as comb honey.

Don't take whatever the railroad wants to give you. You are shipping a valuable product and the railroad company charges a good rate to carry it. Car lots of honey are profitable business for them (if they have no damage claims to pay) and they can afford to give you a good, sound freight car. See that the roof of the car does not leak and that the doors are in good condition.

A Standard Size Case

If possible, the cases should be of one size, so that the car can be filled out evenly. This is usually possible in these sections of the West where one size section (4¼x4¼x1⅞ in.) is used. In New York state it is quite a problem. Often to make up a carload of comb honey, cases of various sizes have to be put into the car, because different sizes of sections are used, often in the same apiary. Unless carefully figured out this will result in uneven loading and possibly cause spaces which must be avoided to prevent shifting. Use good substantial bracing in the doors of the car or wherever it is necessary to prevent cases from shifting. A car ideally loaded will, of course, have even rows of cases and will be loaded throughout to an even height.

Baled hay or straw should always be placed in each end of the car to act as a shock absorber if the car should be bumped. If extracted honey is still liquid when loaded into the car this is also a splendid way to insure safe transportation of it.

A Standard Section

We believe that there are too many different sizes of sections used in comb honey production. We like the beeway section size 4¼x4¼x1⅞ in. We believe it ships better than any other size. It certainly will stand handling much better than the plain section or the section of 1½ in. or 1⅞ in. widths. The comb in these narrow sections becomes easily damaged when cartoned and handled. The section 1⅞ in. wide is less liable to become bruised by the fingers when handled in the packing or cartoning process or by the retail merchant when finally sold to the consumer. It can be used to better advantage for display purposes in the retail store, because of the broader base it has to stand on. The 4x5 or tall sections are very easily toppled over when placed on the retailer's shelves or his counter.

We might also mention that comb honey cartoned under our own brand is first wrapped in a sheet of self-sealing wax paper and the carton is sealed top and bottom. We formerly used the carton that could be opened, but found much comb honey was damaged in the attempt of the retail merchant to show customers the goods in the package and bruising the comb with his fingers. With all due respect to these good folks, the majority of them are apt to be clumsy in handling this delicate product. We therefore seal our carton. ton.

A producer who is to carton comb honey or who is going to sell it to someone who wishes to carton it, should see that he has shipping cases of a size that will hold twenty-four sections after the sections are cartoned. The corrugated paper case will probably eventually replace the more expensive glass front case now principally used. There is no question about the glass front case (especially the double tier case) making a beautiful display. However, it is expensive and will probably grow more so in time. The corrugated case, especially for cartoned comb, will probably gradually replace the glass front wooden case.

Mr. Crane has given us a valuable account of his experience with this container, and our own experience is that they are splendid and producers need not hesitate to use them, especially for cartoned comb.

While our remarks have been addressed principally to the large producers and shippers, they are applicable to the small shippers as well. A satisfied customer is the only kind worth having, and whether the customer buys a five-pound can by parcel post or a case of honey to sell at retail, or a carload, he wants the honey to reach him intact and inside the container in which it is shipped, not leaving a sticky trail enroute. Our product is surely worthy of an honest effort to pack it in a manner that will insure its safe arrival.

BEES SWARM ON VESSEL IN PHILIPPINE WATERS

As an example of out-of-the-usual occurrences that find their way into routine reports, may be cited a recent paragraph received from a ship which sends weather observations at regular intervals to the Weather Bureau of the United States Department of Agriculture. This ship, the American S. S. West Nomentum, en route from Yokohama to Portland, Ore., was anchored off Davao, Mindanao, P. I., about half a mile from shore one July morning this past summer. Capt. L. Oetting, who was on the bridge winding the ship's chronometers, suddenly observed countless dark objects circling round the chart room. Investigation showed that action was necessary, and the chart room doors were hastily closed, for the visitors were an immense swarm of bees. Some minutes later they located themselves on the top end of one of the ship's booms in front of the bridge. They remained on this boom until late the same afternoon. This is the first case known to Captain Oetting of bees swarming on any part of a deep water vessel. Where the bees came from or where they disappeared to is not stated.

Weather reports are received at Washington, D. C., from vessels of more than 20 nationalities scattered all over the world. These vessels serve as floating observatories and it is from their reports that the weather and climate of the oceans are determined. Many of them now transmit their observations by radio. In addition to the routine data included in the reports there are recorded many unusual occurrences and items of interest, such as the above, which have come to the attention of observers.—(U. S. D. A. Press Service.)

Poison Ivy Treatment

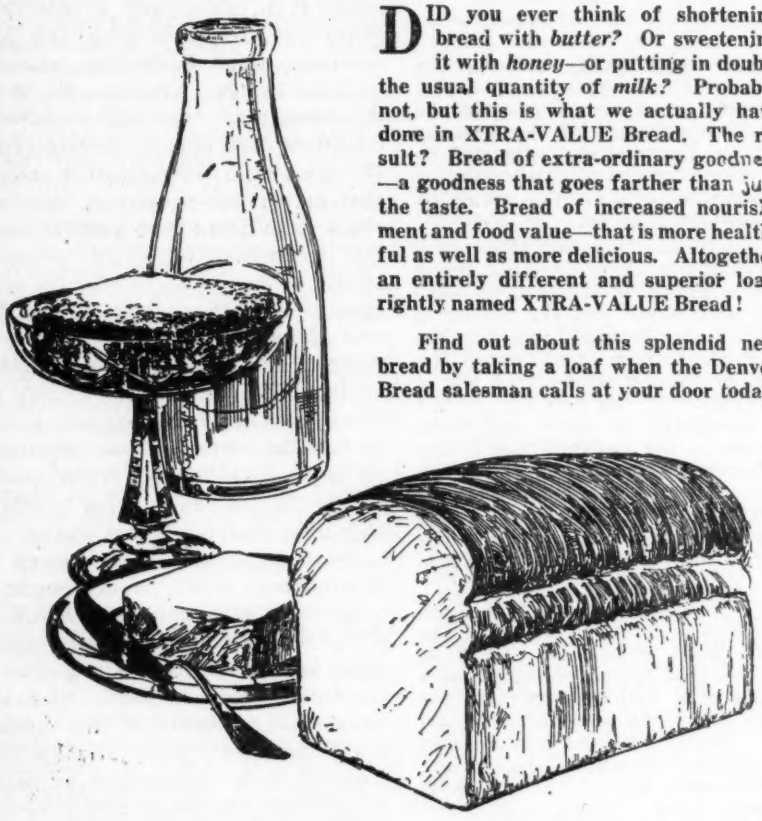
The case of pollen poisoning (A. B. J. Oct. 1924) prompts me to say that no one need suffer long from poison oak (ivy). Bathe the affected area with a saturate solution of sal amoniac and cover with a saturated cloth. Relief is immediate, and a cure in a few days treatment. This was discovered by accident by a friend of mine who was susceptible to the poison. That poison pollen was probably of the same character as the poison oak.

I believe that sal amoniac will prove a specific against bee stings. But as I am immune to the venom, I cannot try it on myself, and my friends are not sufficiently interested in science to allow me to experiment on them. C. J. Pickert.

Minnesota.

Xtra-Value Bread

Made with Milk, Butter and Honey



DID you ever think of shortening bread with *butter?* Or sweetening it with *honey*—or putting in double the usual quantity of *milk?* Probably not, but this is what we actually have done in XTRA-VALUE Bread. The result? Bread of extra-ordinary goodness—a goodness that goes farther than just the taste. Bread of increased nourishment and food value—that is more healthful as well as more delicious. Altogether an entirely different and superior loaf, rightly named XTRA-VALUE Bread!

Find out about this splendid new bread by taking a loaf when the Denver Bread salesman calls at your door today.

This Denver Bread salesman is constantly at your service to supply your wants in bread, biscuits, cookies and cakes. He brings a complete bakery right to your door—brings you temptingly fresh food of uniform excellence, and sells them at the same prices you pay elsewhere. His service is yours free of charge. Take full advantage of it—get all your bakery goods—

"Direct From Oven to Home."

Just Tell Our Salesman
or Phone Champa 2211

Direct from Oven to Home

DENVER BREAD CO.

In Denver they eat bread and honey because they can't help it. It is so good. Read the Advertisement and remember that it appears in the papers in quarter page space repeatedly. The comb honey is shown because people recognize it as honey in the picture. Extracted honey would not be honey for the purpose of an illustration.

THE BAKRY OUTLET FR

By G. Cale.

THE larger bakers are becoming interested in honey, especially for use in breads. Several baking companies, in their advertising, feature bread made with honey, milk and butter. The Denver Bread Company, of Denver, Colo., have an especially fine loaf which they call 'Xtra Value Bread." We produce one of their ads here. Their salesmen deliver right to the consumer's door.

They are in a city where the publicity for honey is unusually good because of the constant efforts of the Colorado Honey Producers' Association, with headquarters in Denver. Consequently there is a great selling value in the use of honey and the Denver Bread Company has no difficulty in building a volume of profitable sales.

They use one-fourth and one-half page space in the newspapers to advertise "Xtra Value Bread." The wording of the ads is a delight to the beekeeper. I quote from one:

"You'll instantly get a new idea of how GOOD bread really can be when you bite into a slice of XTRA VALUE Bread. Never before have you tasted such a flavor! It is absolutely different! There never was such a bread before!

"The secret of its unusual goodness lies in the ingredients used in XTRA VALUE Bread. For shortening, only fresh creamery butter, the shortening you would use in the richest cakes; for sweetening, delicious honey, the best we can buy; and besides these, a generous quantity of pure milk. Do you wonder this bread has a tastiness all its own?

"XTRA VALUE Bread is as far ahead of others in food value as it is in flavor. Milk, Butter and Honey are all known to be high in nutrition and health building contents. Skillfully blended in XTRA VALUE Bread, they form a combination that will give strength and vigor to young and old alike.

"Have the Denver Bread salesman leave you a loaf of XTRA VALUE Bread when he calls at your door today, or phone us if we are not serving you."

Doesn't it sound good, that bread? And it probably tastes as good as it sounds. It is a splendid boost for honey, as everyone uses bread and

KRY AS AN
R HONEY

y G. Cale.

is influenced in favor of honey by the advertising efforts of the baker.

In Quincy, Ill., the H. Korn Baking Company, in January, 1924, announced a prize loaf also made with pure milk, and creamery butter, sweetened with honey. In a full page advertisement they tell of the triumph of "Betsy Rose" bread. In competition with 192 samples of bread, submitted by forty leading bakers of the United States and Canada, they won a silver cup for the best, scoring 97½ points out of a possible 100. Bakers in Pittsburg, Chicago, Minneapolis, Los Angeles, Montreal and other large cities entered the contest and the breads were submitted to a chemical laboratory test conducted by the W. E. Long Company, of Chicago, specialists in scientific service and analyses for bakers.

Every baker who entered this contest was trying to better his bread through laboratory research. Yet, so good was the quality of the honey-made bread that it led all the others by a comfortable majority. It scored perfectly in taste, odor, color and texture. We reproduce one of the "Betsy Ross" advertisements here as they appear in the Quincy papers:

There are probably other baking companies who are profiting from the great advertising and quality value in this use of honey. A friend of mine, writing from Phoenix, Arizona, says: "We have been buying a milk and honey bread here which is just fine." The name of the firm is not mentioned and I have not heard that milk and honey bread was being made in Phoenix.

It should not be difficult for beekeepers who are active in selling honey to a city trade to use such examples as these to influence their local bakers in favor of honey. Just keep up the pressure long enough and try to reach the bakers who are building their business on the basis of quality. Many bakers are content to bake what we call "feathers" and sell it for bread.

Some of the larger baking concerns do a tremendous annual business and use great quantities of materials. The Ward Baking Company, one of the largest in the country, has nineteen bakeries in thirteen cities, and makes about 400,000,000 pounds of bread a year. It uses 1,800,000 barrels of flour, 11,350,00 pounds of sugar and 5,000,000 pounds of raisins. Every day it takes the milk of 6,000 cows. • If the sugar were only honey, what a market that would be!

First in Food Value

FOOD value is of great importance in determining your choice of bread. It is essential that you select a brand that is genuinely nourishing as well as pleasing to the taste, for really good bread is your best food.

When it comes to nutrition, BETSY ROSS cannot be excelled. Every loaf is stored full of healthful substance—solid food value given by the milk, honey and other high-grade ingredients from which BETSY ROSS is made. You can imagine how rich in nourishment and fine in flavor bread made with milk and honey must be!

Your family will enjoy BETSY ROSS. They'll like its flavor—it is genuinely appetizing—and they'll appreciate its satisfying goodness. Besides it's a bigger loaf—real extra-value—that makes perfect sandwiches and just fits the toaster.

Always say BETSY ROSS when you want bread.

EL PASO BAKING CO.

Betsy Ross

The MILK and HONEY Bread

Show this to your baker and ask him to enrich his loaf, too. This comes from Quincy, Ill.

"Laws Pertaining to the Honeybee"

By Colin P. Campbell.

Just off the press. A complete statement of all legal precedents, court decisions, ordinances, and rules by which the keeping of bees may be governed. Also a full copy of all the legal citations and the complete forms of all the laws governing bee diseases and inspection.

Price, $3.00—Cloth bound.

Published by the American Honey Producers' League. For sale by

The American Bee Journal
HAMILTON, ILLINOIS.

or by the American Honey Producers' League, Madison, Wisconsin.

Everything About Rhode Island Reds

Send for Remarkable FREE BOOK

"Blue Ribbon Reds"—the latest book on the best all-purpose breed—has 12 drawings illustrating type and 14 illustrating color. Full page picture of R. I. Reds in natural colors, suitable for framing.

Book tells how to judge—mate for color and shape—obtain fast growth and large size—breed up heavy egg-laying strain—cull—prepare for show room—feed poultry of all ages—linebreed—treat sick fowls—build poultry houses and equipment—and covers many other subjects. Book given absolutely free with three year subscription to

Rhode Island Red Journal only journal in the World devoted exclusively to Rhode Island Reds. Tells how to make big money with them—how to buy, sell, get greatest pleasure, most profit—everything you want to know about Rhode Island Reds. Published monthly, **50c year—3yrs. $1.00.** Send dollar bill today and get book FREE.

RHODE ISLAND RED JOURNAL
363 Democrat Bldg. Waverly, Iowa

PORTER

BEE ESCAPE SAVES HONEY TIME MONEY

For sale by all dealers.
If no dealer, write factory.

R. & E. C. PORTER, MFRS.
Lewistown, Ill., U. S. A.

(Please mention Am. Bee Journal when writing)

PLANS for Poultry Houses

All styles, 150 illustrations; secret of getting winter eggs, and copy of "The Full Egg Basket." Send 25 cents.
INLAND POULTRY JOURNAL, Dept. 56 Indianapolis, Ind.

QUEENS

That you will be proud to own and tell your friends about. Satisfied customers everywhere. Booking orders for 1925. Catalog free.

HERMAN McCONNELL,
(The Bee & Honey Man).
Robinson, Illinois.

A FREAK FROM BEE LAWS

By Lewis P. Tanton.

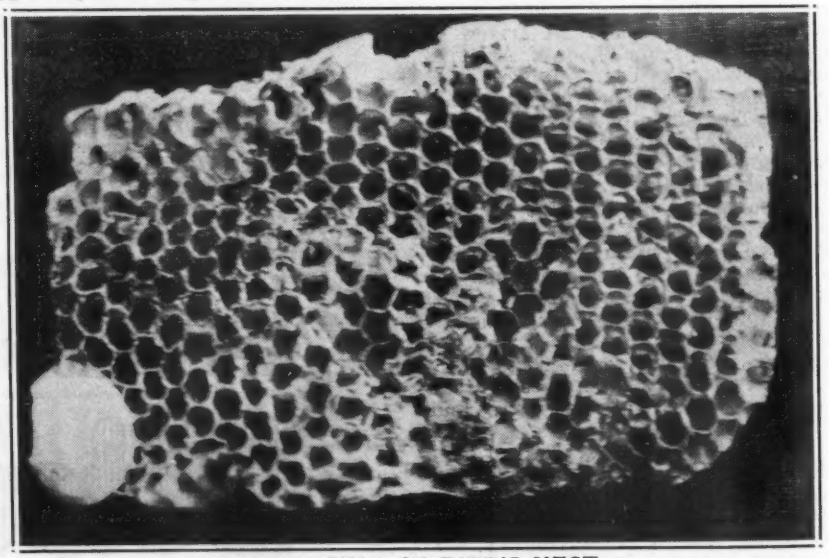
Law and regulations in bee life are not irrevocably fixed. I have a line of queens which have defied generally accepted rules by a unique record. The original mother was the most good-for-nothing queen that I ever met. She barely kept the colony in existence for the first year. The next season I decided to destroy her, but being too tender-hearted to do it, committed her to a small, vicious queenless colony fully expecting speedy execution. Then my chapter of surprises commenced. On the day following I opened the hive to find her lazily depositing eggs in her usual slow and unconcerned way. It did not take the bees long to discover her uselessness and when a month later I opened the hive to replace her with a better queen I found a single queen cell so large and well developed that I left it to hatch out. The young virgin, the largest and handsomest I ever saw, was so beautiful that I decided to give her a trial. Naturally I looked for the death of the old queen by the customary parental foul play, but here my biggest surprises commenced. Within one week after she emerged from the cell I found an unusual supply of eggs, with the old lady still lazily on the job. On a frame further on I also found the young queen, the plumpest beauty ever in my yard, depositing eggs to beat the band.

A month later I made my next examination. The first queen to catch my eye was her ancient majesty. Is it possible, I queried, that she has killed the young queen? But no, for a few frames further on the young queen was busy and the brood chamber completely filled with brood and eggs. By removing some frames and adding empty combs I supplied further working room for the time being. Some days later I opened the hive again, this time to find the chamber chock full of brood and both queens on the same side of the frame, within six inches of each other, hunting for stray cells in which to deposit eggs. This was the last I saw of the old lady and do not know how long she lived after this.

The young queen was beyond question the finest one I ever handled. Her colony was the only one to swarm on the following year, produced more surplus honey than any other three put together and her progeny today controls the three best hives in my yard. When the hive swarmed last year, which was twice repeated, I returned them to the parent hive and presume the mother queen was killed. This week I find the queen of last year again superseded by a young queen equally as handsome as the former one and from which I took a similar record of performance.

This queen has established variations from at least three rules or codes in bee life. First, a queen hastily introduced to a queenless colony in other than the regulation way does not always meet quick death; second, two queens will not always in bloodthirstiness seek each other's life when confined to the same apartment, and, third, blood does not always tell in breeding; for in this case the very finest of queens is produced from the most worthless of mothers. There is, of course, the inevitable conclusion that the drone parent was a big factor in the case, but that could not account for the extra large cell from which the young queen was produced, for that was surely the work of the bees in supersedure.

Prince Edward Island.



BEES BUILD IN BIRD'S NEST

Herewith package containing a piece of comb with the largest egg I ever saw bees taking care of. I took some bees out of an old house recently and this comb was part of the loot. These bees had several combs five feet long, and evidently occupied a place formerly used by a "yellowhammer." I thought perhaps you might be interested in this curiosity. W. H. Stumm,

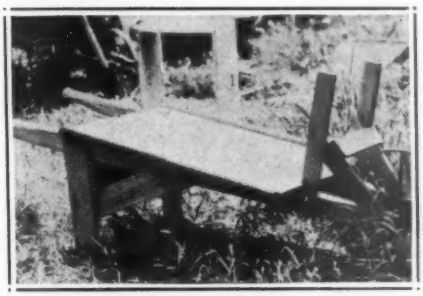
Edinburg, Ill.

(Our thanks to Mr. Stumm. The exhibit shows very plainly how bees glue up things that they cannot get rid of.—Editor.)

APIARY EQUIPMENT

By F. B. Paddock.

Every beekeeper is of a more or less inventive turn of mind. But there are always pieces of equipment which have been developed through necessity and have a real value in beekeeping management. The problem of transporting the ripe honey from the hive to the honey house has been solved in several ways. In the smaller apiary, each super is carried by the beekeeper from the hive to the house. In the supply catalogs there will be found either a wheelbarrow or a two-wheeled cart which is offered to the beekeeper for the purpose of transporting the honey. For one reason or another these may not be adapted to local conditions.



In the picture shown, the wheelbarrow was developed by C. S. Engle, Sioux City, Iowa. This wheelbarrow has a platform built to accommodate two tiers of ten-frame Langstroth supers. As Mr. Engle uses only deep supers, the wheelbarrow load is usually composed of four supers. When the combs are well filled, this means a net of 240 pounds of honey, or a gross weight of well over 350 pounds. This makes load enough for the ordinary man to handle. The wheelbarrow must be well constructed in order to handle this size load.

Mr. Engle is a commercial beekeeper, and some of his yards contain as many as 200 colonies of bees. All of the honey is removed from the hives and is taken to the honey house by means of this wheelbarrow. The door of the honey house is large enough, for the wheelbarrow to pass with ease and the honey is deposited in front of the uncapping table.

Iowa.

(Many of us have used the wheelbarrow regularly and Mr. N. E. France makes the upright of his at right angles with the floor of the barrow, so that the boxes do not slip forward on the tiers as they would with the ordinary slanting upright.—Editor.)

A LETTER FROM THE CAUCASUS

Tiflis, Sept. 6, 1924.

Dear Mr. Dadant.

I am in constant receipt of letters from American and English beekeepers, making known their desire to purchase Caucasian queens of the grey race. I wish to give a little information to the public on this matter.

Out of the 12 queens sent from the Sericulture Station of Tiflis to the United States, in 1923, only 5 arrived alive. During the year just past, 6 queens were sent to Washington and all arrived dead. We have therefore decided not to ship any more queens as long as the time of transit is about 37 days. The candy, in a Benton cage, becomes so dry that it can no longer serve as food. In a case reported by Dr. Phillips, the candy was all consumed and the bees, he thinks, starved to death.

I believe that sugar candy cannot be depended upon for a longer time than about 30 days. In the present conditions of traffic, bees are on the road from 35 to 47 days, instead of 15 to 18, as formerly. It will be necessary to change the food and also insist upon the postal authorities following a regular method of transportation. For another season we hope to be able to try cages of a new design. Until such trials have been made, it is useless for American beekeepers to order queens from the Caucasus.

With best wishes, I remain,

Prof. C. A. Gorbatcheff.

(We believe that it would be worth while to return to the methods employed by us in the Eighties, when queens were sent to us by the hundreds from Italy, in little boxes with two combs, one of light grade honey, the other completely dry. About 50 workers were sent with each queen and the losses were insignificant, about one in twenty.—Editor.)

New York Inspectors Attacked

Mr. W. D. Wright, of Altamont, N. Y., one of the State Inspectors, and three other special deputy inspectors, while on a trip near Elmira, N. Y., were attacked while working in an apiary in which there was American foulbrood.

They were attacked by the owner, with a large stick, who came upon them unaware. He hit one of the deputies over the arm, then attacked Mr. Wright, breaking his arm above the elbow.

This has been reported to the Department of Farms and Markets at Albany, and there is no doubt but what the offender will be severely dealt with.

Prof. R. B. Willson, of Ithaca, N. Y., together with Chas. Stewart, State Bee Inspector, have completed a tour of the state, traveling by automobile, carrying equipment consisting of an extractor, tank, small drum containing Dr. Hultzeman's solution, etc. They held several demonstrations in several of the counties of the state, giving the beekeepers first hand information in regard to the use of this solution in disinfecting the combs of American foulbrood.

The Farm Bureau Agents of the counties in which the demonstrations were held co-operated with Prof. Willson and Mr. Stewart, and a great deal of interest was shown, and much benefit received by those who attended. The average for the total number of meetings held was 16 at each meeting.

HONEY PAILS
MANUFACTURERS OF
"BLOSSOM-SWEET"
AND
BADGER BRAND
5 and 10 lb. Honey Pails.
We specialize in 5 and 10 lb. round pails and 60 lb. square cans. Plain and Lithographed cans of all descriptions.
WILKES-BARRE CAN CO.
ESTABLISHED 1856
WILKES-BARRE, PENNA.

Every year the practical information in each past volume of the American Bee Journal becomes more useful.

We have secured a stock of very durable, laced, marble-board binders in attractive colors. Each binder will hold three volumes of the Journal. Bound in this way your Journals slip into the library shelves like regular books and are thus permanently saved.

These are available to our subscribers for the low price of 75c each.

AMERICAN BEE JOURNAL,
Hamilton, Ill.

FREE! ART PICTURES

of Ideal Chickens in Beautiful Natural Colors, 8 x 11 in., suitable for framing. Given only with Poultry Tribune—every issue. World's Great Poultry Paper. Chuck full of money-making ideas, articles, news by foremost poultry authorities. Pub. monthly, 80 to 120 pages. SPECIAL OFFER:
5 Big Trial Issues 25c
1 Year 50c; 3 Years $1.00
Send stamps or coin today.
Poultry Tribune, Dpt. 5 Mount Morris, Ill.

Booking Orders for May Delivery 1925

My introduced-laying-enroute queens and packages. One good, vigorous young queen, one standard Hoffman frame of emerging brood and adhering bees, and one additional pound of bees. Price complete, f. o. b. Bordelonville, $5.00.

Additional frames of brood, or additional pounds of field bees to make larger package, $1.00 each, respectively, in above packages. Bees and queens, Italians. Special discounts given to schools, colleges and church organizations. Queen introduced and laying enroute to you. Health certificate attached. Safe arrival and satisfaction guaranteed. One-fifth cash books order. Send for circular and names of satisfied customers in your state. Complete references given.

JES DALTON,
Bordelonville, Louisiana.

THRIFTY BEES

will help you increase your 1925 profits. Since 1892 they have been pleasing America's best beekeepers.

Ask for further information and prices.

W. J. Forehand & Sons

Fort Deposit, Alabama.

MONEY AND SATISFACTION FOR YOU

Save one profit by buying direct from factory. Standard, Jumbo and Modified Dadant Hives; cedar or pine. Write for catalog.

A. E. BURDICK CO.,

Sunnyside, Wash.

PACKAGE BEES AND QUEENS

Most northern breeder in California. One select untested, $1.00; 6, $5.00; 12 or more, 75c each.

J. E. WING, Chico, Calif.

American Poultry Journal

Oldest, Largest and Best

3 MONTHS FREE

All ONE, TWO or FIVE year subscriptions received before Dec. 31st will be entered to commence with the January issue, and the Oct., Nov. and Dec. issues of this year will be mailed FREE. Order today and get them.

1 Year 75c. 2 YEARS $1 5 Years $2.00

Averages over 100 pages per issue. Tells how to feed, house and breed; how to secure high egg production; how to hatch and rear poultry successfully. 4 months trial subscription 25c.

American Poultry Journal, 21-523 Plymouth Ct., Chicago

WESTERN BEEKEEPERS!

We handle the finest line of bee supplies. Send for our 1924 price list. Our quotations will interest you.

The Colorado Honey Producers' Association, 1424 Market St., Denver, Colo.

HIGH GRADE ITALIAN QUEENS

Write for Literature.

JAY SMITH,

Route 3, Vincennes, Indiana.

THE EDITOR'S ANSWERS

When stamp is enclosed, the editor will answer questions by mail. Since we have far more questions than we can print in the space available, several months sometimes elapse before answers appear.

SOLUTION FOR ROBBERS

I have been reading in my August "Journal," page 381, the article "Solution to frighten away robbers," which also gives the experience of Mr. Ray Moore in using this solution. So, today, I tried it, being very careful to prepare and use the solution as per his instructions.

Well, it kept away the robbers, all right, but I noticed the effect of the solution caused a great excitement among the bees of the hive. Too much so, I am afraid. It did not injure the bees that I could notice, except the excitement. I am afraid this undue excitement, which is caused by either the odor or taste (perhaps both) of the solution, is not good for the laying queen and might cause her to stop laying for a while.

What do you think about it, and what is your method for preventing robbing when examining a hive? MISSOURI.

Answer.—You perhaps used the solution in question in too great amount. But I hardly think it would injure the queen, although, not having tried it, I might more properly say that "I don't know."

We have no trouble with robbers, if there is nothing exposed in times of scarcity. But when we open a number of colonies in succession, we find that, if there is no crop, a certain number of robbers will gather. We must either start the work in another part of the apiary or stop for a while.

If we are careful to reduce the entrances of the hives, or throw fine grass on them, after the examination, we have but little trouble. We must not wait till robbing has begun, to do this. The fine grass thrown upon the entrance serves the bees in allowing them to grab the robbers as they approach.

English apiarists, at one time, recommended carbolic acid in very diluted form, to use in frightening away robbers.

A very good way, when the hives are old and there are open cracks around which the bees hover, is to mix a certain amount of clay in water and daub it on the joint. It disgusts the robbers.

LATE FEEDING

I have kept bees for more than sixty years, but here is a plan that I have not tried, and would like your advice about it. Being too busy this fall to attend to my bees as I should, I find a few of them that are short of stores and the weather is too cold to feed; how would this work. When I put them in the cellar, place an empty super on top of the hive, then take the cover off from a 10-pound pail of candied honey and put it on top of the frames, honey downward, and pack all around the pail, then put the cover on the hive? MINNESOTA.

Answer.—The plan may work, but there are two possible objections to it. One is that it may excite the bees when they find this honey. The other is that the granulated honey may be melted slowly by the heat of the colony and flow down and settle among the bees faster than they can use it.

I know of one plan which will work. That is to make some sugar candy and lay a cake of it right over the cluster in the same way that you wish to do with the honey. If your honey is very hard and will not soften perceptibly, if you keep it in a room at a temperature of 95 degrees, it may be all right. You might try it on one hive, but I would rather risk the candy, because I have tried it and it worked.

WINTER STORES

1. My fall supers are well filled, but the body is almost empty. For winter give the bees a full super and shake them into it? I've tried to shoo them down with a bee-escape board, but they wouldn't take the hint.

2. Must the bees of a strong swarm be crowded into one hive, or will two hives be all right for winter?

3. Will bees store sugar feed into combs? I read that in your last number, If so, could one help out with sugar food in late fall, if dry, and in case there might be need for filling combs for winter feed?

4. I have plenty of honey for feed. Will they store that into combs, if given now?

5. Wax moth got into my spare supers and worked havoc. Mechanical operations proved unavailing. S. O. S. IOWA.

Answers.—1. If there is no honey in the brood chamber and you have extracting combs in the super, full of honey, it will be all right to let them stay in that super. But it would not do if the super was full of sections, because the little sections divide the cluster too much. In that case it would be better to feed them in the body after removing the super.

2. If they can all hold in one hive, it is better to remove the other, provided the one in which they are has plenty for winter.

3. Bees will store sugar syrup fed to them. But it is rather late to do that now. If you must feed now, better use sugar candy right on top of the combs. Eight or ten pounds of sugar candy would bring them through the cold weather. It takes even less than that in the cellar.

4. Of course honey will do for feed, but as I said, it is rather late to feed, in Iowa. We prefer to feed in October, early.

5. The only way to kill moths is to put the supers and combs in a closed room and burn brimstone in that room. Or you can pile up the spare supers, carefully, and spill some bi-sulphide of carbon at the top, about a tablespoonful to a hive. We usually pour it on a rag and place this at the top of the pile, closing the pile carefully so the bi-sulphide may do its work before it evaporates. Do not go about it with a lighted cigar, as the stuff is an explosive.

HONEY HOUSE

We are moving our extracting plant into town and have a nice large building 20x70, and would like any new ideas you may have along this line, but particularly want to ask you the following questions.

1. Does honey have to granulate first before it can be successfully treated for granulation, to make it stay in the liquid state for a year or such matter? Would like to treat it as we extract and package it if possible to do so.

2. We have a steam boiler, 30-gallon capacity, which carries 15 pounds pressure; Have steam under extractor, and pipe for honey pump to settling tank is steam jacketed. We have trouble also with our settling process; it is not perfect. We have 140-gallon tank, and on top of this a tank 28 in. in diameter, 30 in. high, with a 1 in. U inverted 6 inches from the top, with 12 in. pipe on inside of settling tank and pipe running on outside of settling tank from other end of U down into 140-gallon storage

tank below, but as we fill this storage tank in a few hours running I presume this does not give us sufficient time for proper clarifying. Would this scheme work if tank was larger? We are building up a rather nice little package business in containers from one to ten pounds, especially in the five and ten pound size, and are anxious to turn out a quality product, that is liquefied and will stay liquefied on dealer's shelf. I know you favor educating people to eat honey granulated, but it is sure hard to do; of those you can meet and talk with, a very few be won over, but those not familiar with honey demand a liquid honey, of good flavor, such as is put out by the large bottlers. I would like to install a hot room about 3 feet square and 3 feet high; am thinking of making it of galvanized iron, heating it with steam and fitted with glass in the door so as to be able to read a thermometer, and set a large number of containers in this hot room or steam oven, as a means of liquefying. Can you tell me if this can be done successfully after the jars and pails have been labeled and cased up in wood or cardboard? The idea being to enable one to make prompt shipment on receipt of orders, having nothing to do but set your cases in this oven for a few hours before delivering or shipping. What would be the best temperature to run such an arrangement?

Pardon this long preamble, but I know an editor has an extra supply of patience, and your advice will be greatly appreciated.

WYOMING.

Answers.—1. No, it is not necessary that honey should granulate to treat it, so as to prevent granulation. It may be heated so as to evaporate some of the moisture in it. The length of time that it should be heated depends upon how thick it is first. It has been found out long ago that the thickest honey is slowest to granulate. However I do not know that any particular test has been made to give the exact specific weight at which it will not granulate. Much depends upon the kind of honey, and alfalfa has always proved to be a readily granulating honey.

2. The manner in which you liquefy the honey or heat it is not of any importance. You don't need steam pressure, because you must heat the honey at a much lower degree than steam pressure. It is generally conceded that 180 degrees F. is as hot as advisable, because at a higher degree the honey loses all its essential oils which give it the fine flavor. The main thing to remember is that the honey should be heated to that degree as quickly as possible and allowed to cool quickly, also, as soon as sufficiently evaporated. I see no reason why you could not heat the honey after it has been put in jars; but the jars must be open, so there may be some evaporation. It would probably be best to heat it before putting it up. Besides, it is much slower to heat it in the jars, as glass is a non-conductor of heat.

PERMIT FOR VINEGAR—WASHING PAILS

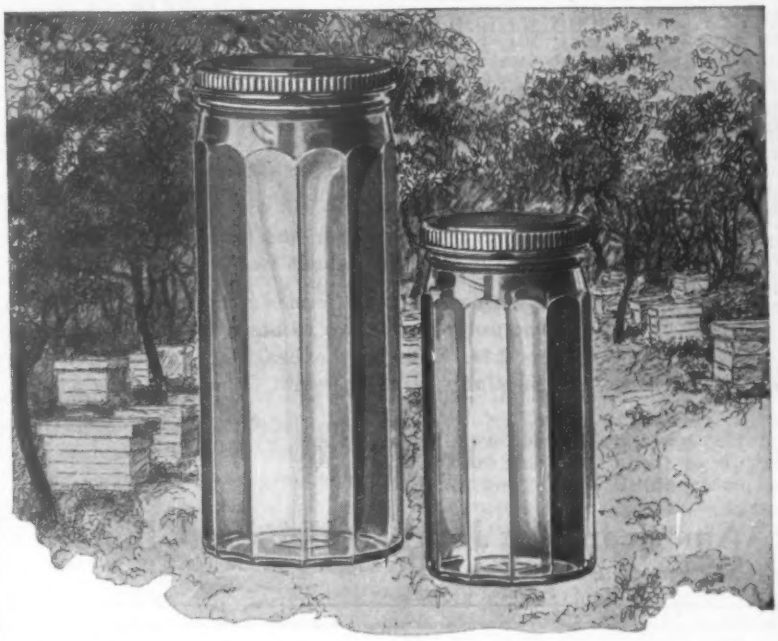
1. Must I have permit to make vinegar from honey? If so where can I get such permit?

2. Should new tin pails or 60-lb. cans be washed before filling with honey?

WISCONSIN.

Answers.—1. If you wish to make vinegar for your own use, not for sale, there is no need of asking for a permit. But if you wish to make it on a large scale, as it might be suspected that you were making an alcoholic drink, it would be better to ask for a permit. Write to your collector of internal revenue, the same man who collects the income tax, and he will tell you where to apply. I imagine that your internal revenue office is in La Crosse, though it may be as far as Madison.

2. The tin of the tin pails is always



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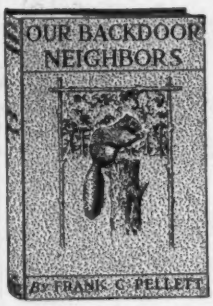

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clean. Washing it would give a lot of trouble. But I imagine some fastidious people might consider it necessary. Use your judgment. I don't think one beekeeper in a hundred washes tin pails or cans before putting in honey.

LATE FEEDING

I was sick this fall and didn't start feeding the bees until October 12. They took the syrup fairly well. I then examined them and found several with only about five or six frames of stores. As it was getting quite chilly by this time, I put all into their packing cases, leaving the top packing off. On these I put a small piece of window screening over the holes in inner covers, and fed them from two quart jars with holes in covers, inverted over the screens. I fed in this way two weeks longer, as the weather was cool and they took the feed slowly. I used two quart jars in Boardman feeders, when I started feeding. I had no frames of honey to give them, as they were mostly new swarms or package bees this spring. Was this a foolish procedure? If so, please give plan you would have followed under the circumstances.

MICHIGAN.

Answer.—No, I don't think you did anything foolish, under the circumstances. If the bees do not have enough, after all you have done, I would suggest that you give them cakes of candy right flat on top of the frames above the cluster. When they reach the top, they will find the candy and will use it. We have never used candy over the combs out-of-doors in winter, but have often used it in the cellar and have always found it efficient.

To make candy for bee feed, add water to sugar, and boil slowly until the water is evaporated. Stir constantly so that it will not burn. To know when it is done, dip your finger first in cold water, then into the syrup. If what adheres is brittle to the teeth, it is boiled enough; pour it into shallow pans, well greased, or on thin paper. You may mark it into squares of proper size for feeding.

Any young woman who knows how to make "fudge" can make candy for bee feed.

MAKING CANDY FOR FOOD

I notice on page 257, in "The Honey Bee," that your method for making candy to feed the bees is to add water to sugar and boil slowly until the water is out, stir constantly so that it will not burn, etc. We followed this as you have it in the book and it went back to sugar and as we understood the recipe supposed this would leave a stiff taffy; when we make candy for family use we always add a little vinegar or cream of tartar and this keeps it from going to sugar again.

Will you please explain this, as to just what this should be when ready to feed the bees? If it goes back to sugar, we just as well feed the sugar in first place; if we want it in stiff taffy we see no way we could do this without adding either vinegar or cream of tartar. Could we use these without injuring the bees?

NEBRASKA.

Answer.—It is probable that you cooked the candy too much. But it will not hurt to put in some cream of tartar, in just enough quantity to keep it soft. It must not be soft enough to run when exposed to the warmth of the hive.

I would not use any vinegar. It would probably not be good for the bees.

KEEPING THE CELLAR WARM

I have about 20 colonies of bees in an underground cellar with rock walls and wood ceiling covered with about one foot of earth and six inches of manure. The cellar is about 10x16x6 feet and I cannot keep the temperature above 34 to 36 degrees. Please tell me how best to handle the situation. Some of the colonies are nuclei with good young queeens.

The inlet pipe is a 4x6 pipe starting 6

inches from the floor and running up to the ceiling 5½ feet out over the top of the wall 3 feet and then up 3 feet above the ground. The outlet pipe is 4x6 inches, starting at ceiling and running up 8 feet with cap over the top to keep out storm.
WYOMING.

Answer.—If, as I understand it, your cellar is not under a building, but in the open, perhaps in a hillside, there ought not to be much difficulty in keeping it warmer. Just add some covering to it, and, especially make a double entry to it, by making a sort of portal with an outer door, well lined, for likely the cold comes to it from the door. It is important that the temperature should not get below 45 degrees.

The air pipe might be smaller without hurting anything. There ought to be no difficulty in wintering bees in a cave of this kind, if properly protected. We have seen many such cellars.

WINTERING AND FOULBROOD

I. I have two beeyards and was planning on wintering bees of both yards in one cellar, but found one case of American foulbrood in my outyard, while my bees at home are free from it.

Would it be advisable to winter these together if I destroy the colony that had American foulbrood?

2. Will American foulbrood spread when bees are in the cellar?
MINNESOTA.

Answers.—1. If you are positively sure that there is no other colony diseased in that apiary, it is probably safe to winter both apiaries in the same cellar. But I believe that, if I were in your place, I would avoid it, for it is very easy to overlook a case of foulbrood, when it is just beginning.

2. No, I don't think there is much danger for it to spread, in the cellar. But when you take the bees out, in spring, there is the possibility of robbing and also of bees going to the wrong hive, and I feel quite sure that you could not very well haul the bees right from the cellar to your outapiary. We know by experience that disease will not readily spread from one apiary to another when they are beyond the flight of the bees of each other. But in the same apiary, there is great danger.

LATE SWARMS AND DRONES

1. Last fall I had an unusual experience with bees. About October 10, I took the last of my supers for extracted off. In two or three days I had one medium-sized and two small swarms to come off. Can you suggest cause?

2. I have one colony of bees that I noticed yesterday that had several drones around the entrance. Have read that they might not have a queen. If this is true, what would you do with them? They have plenty of honey to carry them through the winter.
IOWA.

Answers.—1. I know of nothing that should cause bees to swarm in October at this latitude, except starvation, in which case we call it "desertion" instead of "swarming." But if your bees had on extracting supers with honey in them they were surely not starving. I will have to leave the guess to you.

2. Drones in a colony, late in the fall, are an indication of queenlessness, unless the hive is exceedingly rich, in which case they may keep some drones several weeks. I believe if those colonies were my own, I would risk them through the winter and examine them in early spring, some warm day in March, when they should have brood if they have a queen.

CARNIOLANS AND BIG HIVES

By Stephen J. Harmeling.

Some time ago Dundas Todd wrote me that the delight of his life was in experimenting and trying out new things, and that when his ship comes in he will be hard at it all the time. I want to thank Mr. Todd for the good pointers I have had from his experiments. They led me to adopt the modified Dadant hives.

I, too, like to experiment. There is, as a rule, little profit in it, but heaps of fun. I have been studying the Carniolan bee the past four years and have watched them very closely and it may be that my observations will interest the readers.

Like last year, only one of my Italian colonies in the modified Dadant hives swarmed. My Carniolans in the big Dadants all swarmed, though each had two extracting supers above them and therefore enough room. The swarms were usually small, so that I united them with others or turned them back into the parent hives. Nevertheless, these parent colonies collected as much surplus as did the Italians which did not swarm at all.

On July 3, 1923, I made four nuclei each with four Dadant frames, two with young Carniolan queens and two with tested golden queens. One of the Carniolans and one of the goldens I fed each two gallons of thick syrup. The golden did not breed up well, and died during the following winter. The Carniolan became a strong colony and produced this season (1924) three supers full. The other pair, identical with the above, one with a tested golden and the other with a young Carniolan, were not fed at all. I wanted to see what they would do on the "root hog or die" plan. The golden starved promptly. The Carniolan came out in fine form in the spring of 1924. I had several nuclei like the above, Italians and Carniolans. All the Carniolans came through in fine shape, while several of the Italians had to be united to save them.

I noticed another peculiarity. I had several pairs of hives close together, only four inches between hives, Carniolans in one, Italians in the other. I never saw a Carniolan among the Italians while there were quite a number of Italians among the Carniolans. Probably the homing instinct has been so thoroughly established in them by the oxcart method of the migratory beekeepers of the Julian Alps that these bees never make the mistake of getting in the wrong hive.

They do not follow the operator in the yard by tantalizing and threatening him. I carry a handy paddle and have to knock down a dozen or so of ferocious scouts every few days. I have examined these rascals and they are invariably Italians and usually from the Dr. C. C. Miller strain. I never found a Carniolan among them.

For several days past I have watched the robbers. Many of them are pure Italians. Some hybrids, but never a Carniolan trying to enter a hive. Though they are wonderfully peaceable under manipulation, and when you walk about among the hives, they are quick as a flash to repel robbers. A yellow jacket is not quick enough for them. I saw that today.

Now, though I am favorably impressed with the Carniolans, I fear their swarming propensity. It may be the season had much to do with it. My neighbor, Col. Markham, who lives three miles west of us, a famous scout during '61-64, and 90 years young, had four colonies of blacks, descendants from the old Ezra Meeker stock, which he secured from the Harbison importation, in the Fifties, at $400 each. Well, the four colonies gave him 18 swarms that he saved and he saw two hike away to the woods. I wonder how many colonies he will have next spring.

My neighbor, Mrs. Edward Gorsuch, a mile away, has kept bees of this type all these years, but we persuaded her to get a few good queens two years ago. She has the 8-frame hives. Last spring she came to me and said, "Capt. Harmeling, I am going to sell all my bees. It is of no use. You get all the honey anyway."

My 30 colonies is the big hives with all their immense force get the surplus if there is any to be had.

I will try the Carniolans another season and if they swarm as they did the past season, off go their heads. I have some beautiful and good Italians, gentle ones, too. Only one of these in the big hives swarmed and the swarm and the parent hive got 300 pounds.

We have had no rain here since the first of April last. I am surprised at the quantity of honey the bees gathered in a season like this.

Washington.

What Does This Mean to You?

The average consumption of sugar per person per week in the United States is two pounds. This includes the sugar used in candies, sweet drinks and other foods not prepared in the home. The amount of sugar consumed is now higher in the United States than in most other parts of the world, the per capita consumption having increased during the last 100 years from 10 pounds to over 100 pounds.

Our nearest competitor in sugar consumption is Great Britain with 70 pounds per capita. Argentine is next, with 57 pounds, Germany 54 pounds, France 35 pounds. In China and Russia the consumption is given as 5 pounds for a year for each person.

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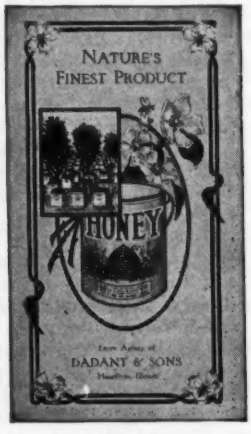

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Annual Winter Meeting

There will be a meeting of the Worcester County Beekeepers' Society, the Federated Massachusetts Association, and the Massachusetts Department of Agriculture, co-operating, on January 6, in Worcester, under the auspices of the Annual Union Agricultural Meetings of the department. These meetings bring together all the agricultural interests of the State for four days, beginning January 6. There will be meetings, demonstrations and extensive exhibitions. The exact program of the beekeepers meeting and exhibition will be announced later, or information may be had by addressing Dr. B. N. Gates, 136 State House, Boston, Mass. A speaker of national prominence is to be secured.

Schedule of Winter Meetings

The following schedule of meetings for December and January is announced by the American Honey Producers' League: Wisconsin, at Madison, December 4-5; Illinois, at Springfield, December 9-10; Michigan, at Lansing, December 10-11; Minnesota, at St Paul, December 15-16; Iowa, at Des Moines, December 17-18; Montana, at Billings, December 19-20; Maryland, at Cambridge, January 8; New Jersey, at Trenton, January 15-16; Pennsylvania, Harrisburg, January 20-23.

Annual Meeting in Illinois

The annual meeting of the State Association of Illinois, will be held in the Hotel St. Nicholas, Springfield, Ill., December 9-10. Morley Pettit, Huber Root, Hambleton, and other top-notch speakers are assured.

Empire State Federation Meeting

There will be a winter meeting of the Empire State Federation of Beekeepers in Syracuse, N. Y., December 2-3, at Slocum College.

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I have sold _____ pounds, and have _____ pounds still on hand.

☐ I would like to see a sample, and get information, on Three-Ply foundation. If it is the perfect foundation I want to know about it.

☐ Please give me information as to Jumbo equipment. "More room at least possible cost" sounds good to me.

☐ Please enter my subscription for one year to Gleaning in Bee Culture, one dollar enclosed. It is so full of practical suggestions and general information I cannot afford to be without it.

☐ I am interested in your New Foulbrood Cure. Tell me of the success other producers have had with the Hutzelman solution and what I would need to treat _____combs

☐ I have _____ pounds of good beeswax to offer. What is your best price?

Name _____

Address _____

The A. I. Root Company of Iowa, Council Bluffs, Ia.

HONEY WANTED

We are ready at any time of the year to take in small or large lots of extracted honey.
Send us a sample and advise quantity you have and the price wanted.

HOFFMAN & HAUCK, OZONE PARK, N. Y.

BERRY'S QUEENS AND PACKAGE BEES

Bring repeat orders because they insure honey crops and satisfaction to the buyer. Booking orders now for Queens and Packages for 1925 delivery. Write for descriptive price list.

M. C. BERRY & CO., Montgomery, Alabama BOX 697

We are offering a limited number of two-pound packages of first-class Italian three-band and leather-colored bees this season, and urge our customers to book their orders early.
One two-pound package of bees_____$2.50 Queen, untested, young _____$1.00
Circular on request.

LOVEITT HONEY CO. 602 N. 9TH STREET PHOENIX, ARIZ.

Crop and Market Report

Compiled by M. G. Dadant

For our December number we asked reporters to answer the following questions:

1. How much honey-radiator solution is being used in your locality?

2. How is honey selling?

3. Will there be any difficulty in disposing of all honey before the new crop year?

4. Any big lots of comb or extracted? If so, what price is being asked?

HONEY AND RADIATOR SOLUTION

The market reports coming in would indicate that no great interest is being taken in honey-radiator solution, the sales being confined to the sale of honey to individual users of such solution.

We have heard of one or two parties who are making this solution on a small scale and furnish it ready-made for garage owners, etc.

Making the price of this solution from a wholesale price of 12 cents for honey the solution would have to sell for a price of at least $1.50 per gallon in order to be handled through garages, etc., at any profit.

This sends the price up to a point, of course, where people will consider seriously using instead the alcohol solution which has been so much used in the past.

There are other points in favor of the honey-radiator solution and we believe that there is a future if the bee-keeper or manufacturer will put out this solution in a large way, ready-made so that the automobile user will only have to place it in his radiator after first making sure that there is no chance for leakage into the cylinder.

We have used this solution during the past year and are recommending it to a number of car users whom we know to be careful. The one big stumbling block and the objection raised most often in the reports coming in, is that this solution is decidedly undesirable for use in a car which does no have good tight gaskets, so as to prevent any leakage of the mixture.

HOW IS HONEY SELLING?

There are a few reports coming in that honey is selling slowly, but practically all would indicate that honey is selling very rapidly, since cold weather has arrived. Undoubtedly this is true because of the reports coming in as to the amount of honey still left on hand. Although we have not yet approached the holiday season, stocks are being diminished at a rapid rate. In California, where the crop is unusually short, large quantities of honey have had to be imported from the inter-mountain territory and from Washington and Oregon. We must not lose sight of the fact that California is rapidly accumulating a manufacturing population which will use large quantities of a product. It is not improbable that in years to come California may not be such a large shipper of honey as she has been formerly. The present year indicates what would happen should the bulk of the harvest of California and other large producing states be consumed at home.

Extracted honey is already practically all out of the producers' hands and the same holds good with comb honey, there being only a few large lots available and these at a price of $5.00 for number one comb honey.

DISPOSITION OF CROP

Reports being true, as above, there will be no difficulty in disposing of the entire 1924 crop before the new year begins and long before the new crop year is at hand. Prices have already risen considerably over 1923 and undoubtedly the first few cars of the 1924 crop will be in great demand as soon as harvested. Scarcely a reporter expected any difficulty in disposing of his entire crop before the new season begins.

ARE BIG LOTS AVAILABLE?

There are, indeed, very few big lots available. A report comes from Mississippi of a considerable quantity of amber honey which is offered at seven cents per pound. This is one of the very lowest offers.

Texas has probably one or two cars of dark honey at a price of eight cents per pound in car load lots. However, this will, without doubt, be disposed of locally, especially in view of the fact that all lots of light and amber honey are practically disposed of.

The bulk of the lot still available are holding for a price of from ten cents in car loads to twelve and thirteen cents in smaller lots.

We are informed of the offer of a car load of light amber western Colorado honey at a price of eight cents per pound.

There are still a few car loads of Utah honey, warehoused, which could probably be bought at a price of nine to ten cents per pound f. o. b. shipping point, although the report comes in that eastern buyers are offering in the neighborhood of seven and one-half cents per pound.

If honey continues to sell as it has now, there is no question but that a price of at least nine cents per pound should be realized for this honey, f. o. b railroad shipping station.

The sugar situation remains unchanged, sugar remaining at a price of about seven and one-half cents per pound for the best granulated, although there seems to be rather an over-supply of granulated sugar, the prices being maintained either artificially or through an exceptionally good demand.

SUMMARY

We believe that there is a little too much of an apathetic attitude toward the use of radiator solution for automobiles.

Of course, in a season like the present one, where honey is in great demand and small supply, the desirability of working this trade is not so apparent. However, should we experience in the near future one of our big crops, undoubtedly beekeepers would be glad to seek an outlet along these channels.

Undoubtedly, beekeepers should consider this problem very seriously the coming year, and at least give the radiator solution a fair trial. The writer, a year ago, used some of this solution without thoroughly mixing, and with rather disastrous effect. A new solution, made after the direction of Mr. Russell H. Kelty, of the Michigan Agricultural College, is now being tried, and with very satisfactory results. The fact that this radiator solution boils at even a higher temperature than water makes it especially desirable in a climate which has hot days during the winter where the loss of alcohol is large.

CLASSIFIED DEPARTMENT

Advertisements in this department will be inserted for 5 cents per word, with no discounts. No classified advertisements accepted for less than 35 cents. Count each initial or number as one word.

Copy for this department must reach us not later than the 15th of each month preceding date of issue. If intended for classified department it should be so stated when advertisement is sent.

As a measure of protection to our readers, we require references of all new advertisers. To save time, please send the name of your bank and other references with your copy.

BEES AND QUEENS

HONEY IN PAILS—
Atwater, Meridian, Idaho.

FOR SALE—125 colonies bees in single-story, machine-made, cypress hives. New 1921. Hold 25 frames 11¼x17⅜ inches. Folding legs, hinged covers, rapidly manipulated. Honey removed sitting in chair; fine for extracted or bulk comb honey; 35 extra hives; 20 covered 5-fr. comb boxes; 4-fr. reversible extractor; 15 honey barrels; moving screens; 10-ton honey tank; no disease. Price $900.00. Famous palmetto, mangrove, orange district, where I have produced many tons of honey; paved roads, large town; fine schools and churches. Selling because I am seriously crippled.
A. F. Brown, Daytona, Fla.,
129 Cypress St.

SEE our display advertisement on page 572.
Loveitt Honey Co.

THREE-BAND ITALIAN BEES AND QUEENS—I am booking orders for 1925 delivery. Two-pound package bees with select untested queen, $4.50; select untested queen, $1.00; select tested queen, $1.50. Safe arrival and satisfaction guaranteed.
J. Allen, Catherine, Ala.

BOOKING ORDERS for early queens, queenless packages and package bees with queen. Write for delivered prices. I ship on the day you name. Jasper Knight,
Hayneville, Ala.

I AM now booking orders for package bees for 1925. Three-band Italian stock, state inspected. There has never been disease in this section. Will begin shipping April 20th. Write for circular and prices.
N. L. Stapleton, Colquitt, Ga.

ORDER DIRECT FROM THE SHIPPER—We do all work our ownselves, so there is no mistake to be made. Our nice three-banded Italian only, with a government health certificate. Shipped on comb of honey; natural feed for transit; easy to transfer. Each package contains a selected untested three-banded queen. 10 3-pound packages, $45; 25 3-lb. packages, $108.75; 50 3-lb. packages, $212.50; 10 4-lb. packages, $52.50; 25 4-lb. packages, $127.50; 50 4-lb. packages, $249.70. Will start shipping April 15; 15 per cent down, balance at shipping time. Orders booked in rotation.
C. A. Mayeux, Hamburg, La.

BEFORE ordering, get our prices on package bees for 1925 delivery.
W. C. Smith & Co., Calhoun, Ala.

TESTED QUEENS—$1.00 each, for the fall and winter months. Delivery guaranteed. Queens are mailed from my yards every month of the year.
D. W. Howell, Shellman, Ga.

MY BRIGHT THREE BANDS, in packages, nuclei and queens for 1925, April and May delivery. My special two pounds of bees in frame emerging brood and honey, with queens introduced, are the safest and best money maker on the market. Write for prices. Satisfaction and safe arrival guaranteed. J. L. Morgan,
Tupelo Apiaries, Apalachicola, Fla.

I AM BOOKING orders for May delivery, from my best Caucasian or Italian race, 3-frame nuclei and queens. Apiary inspected. Peter Schaffhauser,
Havelock, N. Car.

QUEEN BEES in season, $1.00 each.
Graydon Bros., Rt. 4, Greenville, Ala.

BIG, strong colonies in dovetailed hives, $5.
The Foster Honey & Merc. Co.,
Boulder, Colo.

BRIGHT Italian Queens for 1925.
J. F. Diemer, Liberty, Mo.

IF you want two-frame nucleus for 1925, let me book your order now. Write for prices.
E. F. Day, Honoraville, Ala.

ST. ROMAIN'S Quality Bees—I am offering for sale, three-banded Italian bees and queens at a very low price. I am booking orders now with 10 per cent with orders, balance twenty days before shipment. Spring delivery to be made April 15th to 20th, 1925, depending on weather condition. I also guarantee safe arrival and will pay transportation on any size order, from one package to a carload. Health certificate with each shipment. For prices and circulars write to John St. Romain, Marksville, Louisiana.

WE are now booking orders for our high-grade queens for spring delivery. Prices: Untested, $1.00 each, 25 to 75, 85c each, 100 70c each. Tested, $2.25 each, 25 or more $2.00 each. Select tested, $2.65 each, 25 or more $2.25 each. One-fourth down. Write for circular.
E. E. Salge & Bros., Weslaco, Texas.

CARNIOLAN QUEENS—Bred from imported mothers of pure Alpine stock. Lockhart's best select breeding strain is their support. No better combination could be arranged. Prices, 1 select untested, $1.00; 6, 90c each; 12, 80c each, and 25 or more, 75c each. Circular free. M. G. Ward, Lathrop, Calif.

SEE my display ad. page 565.
Jes Dalton, Bordelonville, La.

Want Ads Pay Big Returns

Invest a small amount in these ads and they will help sell your goods at a profit.

GOLDEN THREE-BANDED and Carniolan queens. Tested, $1.00; untested, 75c each. Bees in 1-pound package, $1.50; 2 pounds, $2.50; 3 pounds, $3.25. Safe delivery guaranteed. C. B. Bankston,
Box 65, Buffalo, Leon Co., Texas.

BREEDER of fine Italian queens.
C. B. Saunders' Apiaries, Merom, Ind.

MERRILL'S QUEENS—$1.00 each.
R. E. Merrill, Muncy, Pa.

HARDY ITALIAN QUEENS—$1.00 each.
W. G. Lauver, Middletown, Pa.

GOLDEN and three-band queens reared in separate yards; booking orders for 1924. Untested, one, $1.25; doz., $11.50. Safe arrival guaranteed in U. S. and Canada.
Tillery Bros., R. 5, Greenville, Ala.

FOR SALE

HONEY IN PAILS—
Atwater, Meridian, Idaho.

FOR SALE—35 colonies in modified Dadant and 24 in 10-frame Standard hives. Equipped with 71 comb and 79 extracting supers; extractor; tank; cappings melter and other valuable equipment. This outfit will be sold for $450, if taken before January 1. Colonies in fair to excellent condition; ample stores; no disease. Write for particulars. L. C. Worth, Lilbourn, Mo.

FOR SALE—Good second-hand 60-lb cans, 2 cans to a case, boxed, at 60c per case, f. o. b. Cincinnati. Terms cash.
C. H. W. Weber & Co., 2163 Central Ave.,
Cincinnati, Ohio.

FOR SALE — White and amber extracted honey. Write for prices. State quantity wanted. Dadant & Sons, Hamilton, Illinois.

FOR SALE—120 acres irrigated unimproved land in Wyoming, $30 per acre. Will grow 500 tons alfalfa per year. Easy terms. Would accept some bees in 10-frames or larger equipment on this.
Asher F. Dillard, Walthill, Neb.

HONEY AND BEESWAX

HONEY IN PAILS—
Atwater, Meridian, Idaho.

EXTRA FINE white clover honey in 60-lb. cans; 12 cents per pound in ton lots.
Herbert Kietzer, Vernon Center, Minn.

HONEY FOR SALE—Any kind, any quantity. The John G. Paton Co.,
217 Broadway, New York.

CLOVER HONEY—In 5- and 10--lb. pails, and 60-lb. cans. Write for prices.
Henry Price, Elizabeth, Ill.

FOR SALE—Finest white clover honey, also light amber. Lewis O. Klaty,
Carsonville, Mich.

CANNIFORD'S DELICIOUS THOROUGHLY ripened pure honey in 5- and 10-lb. pails and 60-lb. cans. Any quantity. All honey shipped out thoroughly liquefied and must be satisfactory to customer or money back. Sample 10 cents. Eight cases of Clover Heartease Comb Honey at $4.50 per 24 section case. Fine Brick Cheese in 5-lb. bricks via parcel post. Write for prices on honey and cheese. All honey shipped from Rockford, Ill.
Canniford's Honey Farm,
Winnebago, Ill., R. 1.

FOR SALE—Extra fancy white clover extracted honey; new cases, new crop; also comb honey. Write for prices.
Edw. A. Winkler, R. D. 1, Joliet, Ill.

WHITE CLOVER EXTRACTED HONEY in lithographed 5-lb. pails at 75c each F. O. B. here, in wholesale quantities.
John A. Johnson, Pomeroy, Iowa.

WE are paying 8½c net cash, your station, for white honey, carlots.
The Foster Honey & Merc. Co.,
Boulder, Colo.

FOR SALE—Excellent honey in 5 and 10-pound pails. Write for prices.
E. Dowty, Falls City, Neb.

GOOD comb honey for sale in quantity. Prices on request.
Frank Coyle, Penfield, Ill.

CHOICE white clover honey in 5 and 10-pound pails and 60-pound cans. Prices on request. Sample 15 cents.
Sundberg Bros., Rt. 3, Fergus Falls, Minn.

FOR SALE—No. 1 white comb honey, $5.50 per case, 24 sections to case, six cases to carrier. Dark extracted (about half clover), 10c per pound, two 60-pound cans to case.
H. G. Quirin, Bellevue, Ohio.

FOR SALE—Clover honey. Superior quality and heavy consistency, in 60-pound cans. Prices on request.
Louis Kasch, Pecatonica, Ill.

FOR SALE—First quality basswood honey, 12½c per lb. in ton lots, F. O. B. Omaha.
Thos. Atkinson, Rt. 5, Omaha, Neb.

CLOVER and basswood blended by the bees, color and body fine. Prices upon request. State amount wanted.
W. A. Jenkins, Box 115, Rock Port, Mo.

FOR SALE—Honey in 60-lb cans; sweet clover, basswood, white clover, and other flavors. Tell us what you want. Beekeepers who need more honey for their trade and solicitors should write us.
A. I. Root Co.,
230 West Huron St., Chicago, Ill.

FOR SALE—Our own crop white clover and amber fall honey in barrels and cans; also white alfalfa in cans. State quantity wanted and we will quote prices. Samples on request.
Dadant & Sons, Hamilton, Ill.

FOR SALE—White honey in 60-lb. cans; also Porto Rican in 50-gal. barrels. Samples and prices on request.
A. I. Root Co.,
16-18 Jay St, New York, N. Y.

FOR SALE—Comb and extracted white clover honey. Extracted in 60-lb. cans, 5 and 10-lb. pails. Prices given on request. Sample 15c. F. W. Summerfield,
Waterville, Ohio.

FINE QUALITY clover honey. Prices upon request. State amount wanted.
C. S. Engle 1327 23rd St., Sioux City, Ia.

BEESWAX WANTED—We need large quantities of beeswax and are paying good prices now. Ship to us at Hamilton, Ill., or Keokuk, Iowa, or drop us a card and we will quote f. o. b. here or your own station, as you may desire. Dadant & Sons, Hamilton, Ill.

HONEY FOR SALE in 60-lb. tins. White clover honey crystallized, 13c per pound. L. A. West Indian honey, liquid, 11c per pound. Hoffman & Hauck, Inc., Ozone Park, N. Y.

SUPPLIES

FOR SALE—Two hundred comb honey supers for 4x5x1⅜ plain sections; 8 frame complete. One hundred full depth extracting supers; 8-frame with combs; four frame Root's, reversible extractors, and honey tanks; also queen excluders and feeders; a few hives of bees. Geo. H. Frey,
Gen. Delivery, Cedar Rapids, Iowa.

HANGING SECTION HOLDERS AND FENCES for 4¼x4⅜x1⅜ sections; free of propolis, in A-No. 1 condition and cheap. Also comb honey shipping cases (wood) with glass.
C. H. Wiley, Catlin, Ill.

60-DAY SPECIAL SALE on standard Hoffman self-spacing frames; section holders and hives. Number one quality goods. Satisfaction guaranteed. Write today.
Schmidt Bee Supply Co.,
1420-1422 Hager Ave., St. Paul, Minn.

ROBINSON'S COMB FOUNDATION will please the bees, and the price will please the beekeeper. Wax worked at lowest rates.
E. S. Robinson, Mayville, N. Y.

USED CASES with two new 60-pound cans, 89c, export cases 95c each in hundred case lots or more. Used cans and cases 45c and 50c each per case.
The Foster Honey & Merc. Co.,
Boulder, Colo.

HAVE YOU any Bee Journals or bee books published previous to 1900 you wish to dispose of? If so send us a list.
American Bee Journal, Hamilton, Ill.

CONNECTICUT and Rhode Island headquarters for Root's Beekeepers' supplies.
A. W. Yates, 8 Chapman St., Hartford, Conn.

WESTERN BEEKEEPERS—We can demonstrate that you can save money on buying bee supplies of best quality. Write for our latest price list.
The Colorado Honey Producers' Association,
Denver, Colo.

MISCELLANEOUS

SEE our display advertisement on page 572.
Loveitt Honey Co.

WRITE for application blank if your education, business experience and beekeeping knowledge would make you available for positions in our sales and warehousing organization. Address Box 377, care American Bee Journal.

GEORGIA paper shell pecans, none better; delivered, five pounds $3.75.
W. E. Buckner, Mt. Vernon, Ga.

"BEES and HONEY"—Bee paper edited by George W. York, $1.00 year, or six months trial 30c. Sample free. "Bees and Honey," with American Bee Journal—both one year, $2.00. Address York Honey and Bee Supply Co., Spokane, Wash.

WE HAVE NOW ON HAND, from Paris, a number of copies of the excellent work of Perret-Maisonneuve, in French, entitled "L'Apiculture Intensive & L'Elevage des Reines." The first shipment was delayed over two months. The price of this very progressive work is $1.50 by mail, prepaid
American Bee Journal, Hamilton, Ill.

WESTERN HONEY BEE, 428 S. Hewitt St., Los Angeles, Calif., published by Western beekeepers, where commercial honey production is farther advanced than in any other section of the world. $1.00 per year. Send for sample copy.

GLEANINGS IN BEE CULTURE, published at Medina Ohio, is the most carefully edited bee journal in the world. Its editor-in-chief is Geo. S. Demuth. Its field editor is E. R. Root. Ask for sample copy.

MAKE queen introduction sure. One Safin cage by mail, 25c, 5 for $1.00.
Allen Latham, Norwichtown, Conn.

THE BEE WORLD—The leading bee journal in Britain, and the only international bee review in existence. It is read, re-read and treasured. Will it not appeal to you? Specimen copy free from the publishers. The Apis Club, Benson, Oxon, England. Send us a postcard today. It is well worth your little trouble.

THE "Archiv fur Bienenkunde" is a valuable scientific publication. "It merits the appreciation of all beekeepers acquainted with the German language," says the Bee World (January, 1923). "The Archiv fur Bienenkunde, now in its fifth volume, is of as high grade as any bee journal which comes from abroad, dealing especially with the scientific aspects of beekeeping," says Gleanings in Bee Culture (February, 1923). Annual subscription, $2. Specimen copy free. Publisher, Theodor Fisher, Freiburg im Breisgau, Kirchstrasse 31, Germany.

THE DADANT SYSTEM IN ITALIAN—The "Dadant System of Beekeeping" is now published in Italian, "Il Sistema d'Apicoltura Dadant." Send orders to the American Bee Journal. Price $1.00.

WANTED

HONEY IN PAILS—
Atwater, Meridian, Idaho.

WANTED—To buy amber and dark honey in 60-lb. tins. Name price and if interested will ask for sample.
A. G. Woodman Co., Grand Rapids, Mich.

BEESWAX WANTED—We use large quantities of beeswax and are paying good prices now. Samples, together with lowest quotations, will be appreciated.
Western Chalk Company,
703 W. Harrison St., Chicago, Ill.

WANTED—Used extractor; four-frame. Write J. T. DeLacy, Havana, Fla.

HONEY—State price and send sample.
Paul Thomas, 1157 Third St.,
Milwaukee, Wis.

WANTED—100 to 200 colonies bees in healthy condition, in irrigated valley, in Montana or Wyoming. Must be good fishing in mountain streams nearby. Speak quickly.
S. Fisher Laurence, Boulder, Colo

BEES WANTED—Lots of 10 or more colonies; disease free; Indiana or Illinois preferred.
Frank Coyle, Penfield, Ill.

WANTED—Immediately—Honey and water anti-freeze made up already in fifty-fifty solution. Write or wire how many barrels, how quick, and what price.
John N. Prothero, Dubois, Pa.

WANTED—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5c a pound for wax rendering.
Fred W. Muth Co.,
204 Walnut St., Cincinnati, Ohio.

WANTED—Car or less lots of clover honey; mail sample and quote lowest cash price.
A. W. Smith, Birmingham, Mich.

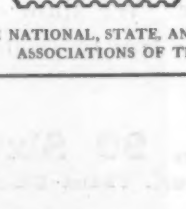
Have you tuberculosis?

Wait! Are you sure?

SCIENCE has discovered that the germs of tuberculosis enter the bodies of seven out of every ten people during childhood. You are probably already infected. You are in no danger from tuberculosis so long as you keep well and strong enough to resist the attack of the germs.

There is an organized war against tuberculosis, carried on by the Tuberculosis Associations. Its object is to keep you strong and well, and to stamp out the disease so that others will not be infected. This war is financed by the annual sale of Christmas Seals

Christmas Seals save the lives of nearly 100,000 people every year Indirectly they may have been the means of saving yours. Help in this work. Buy Christmas Seals. You not only protect yourself, but you help others not so fortunate. Buy Christmas Seals, and buy as many as you can.



STAMP OUT TUBERCULOSIS WITH CHRISTMAS SEALS

THE NATIONAL, STATE, AND LOCAL TUBERCULOSIS ASSOCIATIONS OF THE UNITED STATES

GLASS AND TIN HONEY CONTAINERS

2½-lb Cans in crates of 100 ..... $4.00 a crate
10-lb. Pails in crates of 100 ..... 5.00 a crate
60-lb. Tins, used, 2 tins per case ..... .25 a crate
5-lb. Pails in crates of 100 ..... 7.00 a crate
60-lb. Tins, new, 2 tins per case ..... .90 a crate
160-lb. Kegs ..... 1.20 a keg

GLASS JARS WITH GOLD LACQUERED CAPS

8-oz. capacity, 2 doz. per carton $ .90 per carton
16-oz. capacity, 2 doz. per carton $1.20 per carton
3-lb. or quart, 1 doz. per carton $ .90 per carton

HOFFMAN & HAUCK, INC. 1331 OCEAN AVE. WOODHAVEN, N. Y.

HONEY WANTED HONEY

We are always in the market for honey, mail fair sized sample of extracted, state how much you have, how packed and your lowest price, delivered Cincinnati or f. o. b. your station. Comb honey, state how graded and how packed.

C. H. W. WEBER & CO., CINCINNATI, OHIO

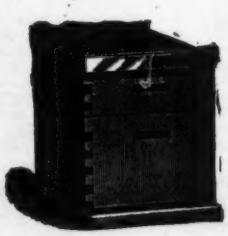
ITALIAN QUEENS **GOLDEN QUEENS** **CARNIOLAN QUEENS**

All our queens are young and prolific

We have for years been shipping tons of bees to all parts of the United States and Canada. Now is the time to book orders for next spring.

Send for our revised price list, and FREE BOOK, entitled "SUCCESS WITH PACKAGE BEES." It is interesting and instructive.

AULT BEE CO. 513 HOUSTON BLDG. SAN ANTONIO, TEXAS



MR. BEEKEEPER—

We have a large plant especially equipped to manufacture the supplies that you use. We guarantee all materials and workmanship. We ship anywhere. We allow early order discounts and make prompt shipments. *Write for free illustrated catalog today. We pay highest cash prices and trade for beeswax.*

LEAHY MFG. CO., 90 Sixth Street, Higginsville, Missouri

J. W. ROUSE, Mexico, Missouri. Texas Distributors, A. M. HUNT & SONS, Goldthwaite, Texas

"GRIGGS SAVES YOU FREIGHT"

MAUMEE

Maumee is 8 miles up the Maumee River, and this is the new home of GRIGGS, where we can supply you with the **VERY BEST BEE SUPPLIES** and **DADANT'S FOUNDATION.**

Our new Catalog will be ready to mail January 1st, 1925. Send your name and get your copy, as it will have information you will be glad to have concerning the rearing of Bees and Chickens and the production of Honey.

Special Discounts for early orders for Supplies. Let us know your wants. **HONEY** wanted, either cash or trade.

THE GRIGGS COMPANY, INC, MAUMEE, OHIO

"GRIGGS SAVES YOU FREIGHT"

Better Service for the Buyer of Bee Supplies

is one of the principal aims of our business. We believe, therefore, that our greatest usefulness lies in supplying WHAT you need, WHEN you need it.

We are manufacturers and distributors of just a little better bee supplies, just a little higher grade SECTIONS, Bee Hives and Frames, in fact, everything the beekeeper needs.

Write for our free illustrated catalog and price list today.

August Lotz Company, Boyd, Wis.

5000 Combs Saved from the Melting Pot

By one of Pennsylvania's most successful beekeepers.

"J. C. Hutzelman, Glendale, Ohio. Troy, Pa.

"Dear Sir: I have used your solution to disinfect five thousand combs and have used them for brood combs and extracting purposes, and find them perfectly safe. I have taken the worst ones I could find and put them on a healthy colony for testing purposes and used them for second brood nests and failed to see any American foulbrood show up in them. In fact I had some of the finest frames of brood I ever saw in the worst diseased combs after disinfecting. I think it is the real solution of our foulbrood problem.

Yours truly,

(Signed) Harry Beaver."

Save your combs with the Hutzelman Solution.

The Hutzelman Solution was patented October 14, 1924.

This patent protects the beekeeper against mixtures not only of doubtful value for disinfection, but also against mixtures containing poisons generally used to denature alcohol.

Fall and winter is the best time to do this work.

Write for full information.

J. C. HUTZELMAN, M. D.. Glendale, Ohio

The Engravings appearing in this publication are made by the

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Waterloo, Iowa

Engravers, Electrotypers, Commercial Photographers, Photo Retouchers, Designers.

Write if you need designs of Signature Cuts, Letter Heads, Labels, Etc.

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BURR COMBS

Come With Me

By H. C. Dadant.

Come with me to the duck camp. We drive south and west from Hamilton over hilly and rich prairie districts to the bluffs of the Mississippi River. Bluffs that once were river banks. Here let us stop. How many thousand years ago did this stream cover the miles across to the Missouri and Iowa bluffs? Its deeper channels were then in the windings of the present sloughs or bayous among farms of the bottom lands; a repetition, on a large scale, of the little creek at our home apiary which within our memory, used to wind, snake-like, on its way to the river.

Down we now "Dodge" to the lower level, covering a couple of miles of crooked "straight" roads built on sand and loam with corduroy for bridges, following a winding slough here, passing persimmon or pecan trees there, with birch and pin oak, plenty of cottonwood, willows and maple along this part of the drive to the levee.

Over the dike, a few steps beyond, and the boat landing is reached. A whistle and a whoop "Hey!" brings the caretaker, or someone from the timber-hidden camp, to the landing opposite. While waiting for the little boat you get thrills of anticipation watching the sky for weather worthy of a duck.

Taylor Island was so named because it is used as a stopping place for migratory birds who find the open waters—bays, ponds, timber and sand bars—delightful spots for "tayloring" their plumage before their next relay to the gulf. The original govenment plot mentions seven acres, and the first title was to a soldier of the war of 1812 as military bounty land from the federal government. Today we have about 180 acres, thanks partly to the builder of the Mississippi River jetties, Captain Eades, who demonstrated how the river could be narrowed and deepened by dikes made of willow cribs and stone.

Islands have a peculiar habit of moving down stream, as erosion wears away the upper ends and deposits accumulate below. The diking system, however, which also encourages timber growth, eliminates much change of the kind today.

Wild rice doesn't grow here, as on many northern and southern lakes, because of the great variation in the river stage. So decoy ducks are kept in pens extending into the water and must be moved with a foot of rise or fall. They attract the wild birds to stop, rest and feed with them. This is a common practice on all the large hunting grounds the Illinois rivers afford.

The increase of a 7-acre island, 25 times in 100 years, reminds the beekeeper of the growth of an apiary during swarming season, and it is interesting to study how it is done. Much of the history of the change is found in the stratas of its soil, which are well defined in a perpendicular bank on the north end, washed every year during the flood stage of spring. It is remarkable how well defined the layers of sand of coarse, sharp quality, of the poorer building sand and of rich deposits of black silt, show in this cross section. How far up the river the headland of this island extended, towards where now the low sand bar of the next island is, no one can say.

Blue grass cannot get a foothold on a soil entirely submerged every year, but we have coarse grasses and plenty of nectar-yielding fall weeds for bees.

The permanent club house built this year is a 20x24 hip roof affair, tents and houseboats having served their purpose at different spots during the first two years of getting familiar with the location and planning a permanent housing for the inclemencies of the season which lasts from October to January. Standing on posts, man high, and above flood stage, it is located in a pleasant spot, almost surrounded by sizeable timber, where noctornal animals of fur and feather rustle the leaves in their visit to the garbage nearby. There is the living and dining room, with Doc's radio in one corner, and a long wood stove in the other. The radio tells us when the cold blasts are coming, to bring forth another pair of wool socks for morning and delight to the hunter. The sleeping quarters have real double beds, uppers and lowers, built in. There is the caretaker's sleeping berth and last, but most important, the kitchenette. We were fortunate this year in driving a well to good water, which is rare on such river bottom locations.

One need not be a hunter to enjoy this camp. If you carry a kodak, pitch a horseshoe or ride a hobby you can do it here.

Yesterday Fred and I slipped down with the current to a pecan grove a mile below and the little outboard motor brought us back with a treat for home folks. Rather a drowsy ride, in the clear sparkle of a bright sun shining all over the water, and occasionally, just for fun, the outline of a cloud shadow passing noislessly by. Such beautiful autumn days make it easy to complain of Indian summer fever when 8 or 10 hours of labor are on schedule. But how easy and pleasant the alarm clock calls a 12-hour day at camp! Come with us to the water's edge at daylight and see the surface fog drift with the breeze a while and gradually dry up at sunrise, revealing land marks here and there and wild life as it happens to be about.

Sometimes a beautiful day brings a number of birds. How can they recognize the hidden gunner so well? A week ago a flock of geese were coming in just the right direction, but turned 200 yards to the left, within close range of a fisherman in an open boat. Hard luck, I say, for a hunter who has never killed a goose.

Men who do not hunt and deplore the sport of the hunter, miss a real thrill and a restful recreation. But they never know it. I plead guilty to the hunter's fever. I never could learn the enjoyment of burning tobacco leaves, although I have often tried it, and don't mind the other fellow's taste. Shall we not be tolerant of each other and strive for reason and moderation?

There are two elderly bachelor brothers from Iowa who live in Hamilton and they tell with great satisfaction, of hunting down the LAST wild turkey in Iowa. I don't like that kind of sport. Such hunters should pause and realize that they are ending the species they enjoy most to see. Most hunting laws are just and proper and should be observed. They are made primarily to preserve the species, reduce crop losses and are of special benefit to the sportsmen.

I like to stay out of a morning until seven-thirty and return to the cottage for breakfast with a banquet appetite. It is good to have all of us get back each autumn with our feet under the same table. The night of fasting is so badly broken the dishpan groans when it is all over.

Here are the seven members of the Taylor Island Outing Club and their official or private capacity: "Doc" (Dr. E. G. Wollenweber, President), wood decoy decorator, at the head of the table; "Louie" (L. C. Dadant, Secretary-Treasurer) commissary and champion horseshoe pitcher; "Roz" (Roswell B. O'Hara, attorney), admitted to the sand bar, my 240-pound baby (I weigh 120 pounds and rock him to sleep every night); "Hank" (J. H. Lloyd, private, farm advisor), our landscape director and only sure marksman; "Maurice" (M. G. Dadant, private), director of the water stage! "Mad" (S. Madison Wyles, private), Ford and Lincoln admirer, "ford" and "blind" director; "Henry" (the writer, private), locating fresh tracks and lost trails. We all depend on the caretaker, Mr. Choulet, who distributes feed to the ducks and men, and says he enjoys the hoot of owls on the nights alone in camp.

BOTTOMS

should be nothing but *all-heart* Tidewater Cypress, the true "Wood Eternal." (*Of course.*)

Its defiance to decay makes it a big money-saver, *figured by the year.* Ever tried it?

Be sure you get the genuine *"Tidewater"* species. Buy it by the Arrow Trade-Mark.

SOUTHERN CYPRESS MANUFACTURERS' ASSOCIATION

1251 Poydras Building, New Orleans, La., or 1251 Graham Building, Jacksonville, Fla.

Insist on TRADE-MARKED Tidewater Cypress of Your Supply Dealer or Local Lumber Yard. If he hasn't it, LET US KNOW.

HOW BIG?

Has that question ever run through your mind when you have read our ads? It would require several columns in this journal to answer the question in detail. Briefly, we say:

"BIG ENOUGH. BUT NOT TOO BIG!"

"What does that mean?" you ask.

It means two important things—*"Big enough"* to supply many straight carload buyers, *"But Not Too Big"* to execute promptly with precision the order from the bee-keeper who wants nothing more than a spool of wire, a pound of "SUPERIOR" foundation or a "SUPERIOR" bee hive.

WESTERN BEEKEEPERS, GIVE US A CHANCE!!

SUPERIOR HONEY COMPANY, Ogden, Utah

Branches and Agencies at Idaho Falls, Idaho; Manhattan, Mont.; Delta, Colo., and Los Angeles, Calif.

The Beekeepers' Own Testimony

Weedsport, N. Y., Sept. 4, 1924.

"I have found that Three-ply Airco Foundation is all it is advertised to be, and more. Each frame in the 70 in which I used the Three-ply is 100% perfect."—E. H. Sunderlin.

New Russia, N. Y., Aug. 19, 1924.

"I am well pleased with the Three-ply Foundation, and have no bulging or sagging combs in any hive where I put this foundation."—Fred A. Dunning.

Marion, N. Y., Aug. 13, 1924.

"Last spring we placed between 1,200 and 1,500 sheets of Three-ply Foundation on the hives, and because of poor condition of the bees we find that that which was not touched, and had been with the bees for three months or more, was still in good condition as far as gnawing or tearing down is concerned. Of the filled combs which went through the extractor not one was broken, and we were very careful to examine them to see how much they would stand. Also in neither brood nor extracting combs have we been able to find any indications of sagging, which seems to be the best of all."—Crane & Crane.

Wilton, N. Y., Aug. 18, 1924.

"Three-ply Airco Foundation is all you claim it to be. The bees have not gnawed it and we have some of the most beautiful frames of sealed clover honey that I ever saw. I think the increased number of worker bees has paid for the cost of new combs. Expect to put in more next year."—Mary E. Knapp.

Syracuse, N. Y., Aug. 16, 1924.

"I find that the Three-ply Airco Foundation I got of you is the best I have ever had. It does not break down like some I have had."—George Goss.

Indian Lake, N. Y., Aug. 16, 1924.

"This has been only a medium honey year in our locality, but nearly all of my foundation, the Three-ply Airco, has been worked out in fine shape."—James L. Fish.

Rock Rift, N. Y., Sept. 1, 1924.

"I am well satisfied with your Three-ply Airco Comb Foundation, and find all your claims for it justified."—Leon Trask.

Fayetteville, N. Y., Aug. 18, 1924.

"Three-ply Airco Foundation has been more satisfactory than any other I have ever tried, and I have used nearly all the advertised best brands."—L. A. Stafford.

Bath, N. Y., Aug. 15, 1924.

"We find Three-ply Airco Foundation will give more perfect combs, with no gnawing around wires, than any foundation we have ever used and will stand up in the extractor with no breakage at a greater speed. Three-ply Airco for us in the future."—The Silsbee Apiaries.

Salamanca, N. Y., Aug. 15, 1924.

"Three-ply Airco Foundation is the best foundation I have ever used."—J. W. Bernhoft.

Cortland, N. Y., Aug. 12, 1924.

"I find that the Three-ply Airco that I ordered of you has proved to stand the test. Some foundation has been on the hives nearly all summer and I have some of the finest combs that I ever saw, filled out clear to the edges, very few holes and some of the foundation was on the hives for weeks before I got them drawn out. The only gnawing that I noticed where it was on so long, they ate the foundation cells some, but finally drew perfect combs."—David M. Hammond.

Batavia, N. Y., Aug. 18, 1924.

"I have used your Three-ply Airco Foundation for two years and I think it is the best on the market."—I. E. Whitcomb.

Penn Yan, N. Y., Aug. 18, 1924.

"I have used your Three-ply Airco Foundation ever since it has been offered for sale. It has proven entirely satisfactory to me, and I believe will equal, and perhaps exceed, all the claims made for it."—R. Lee Edmonds.

Stanley, N. Y., Aug. 18, 1924.

"This year we have used over 100 lbs. of your Three-ply Airco Foundation and have found it very satisfactory. Much of this foundation was used where we transferred bees to new hives in full sheets of foundation. We found that the bees did not gnaw the foundation as is usually the case with common foundation. None had sagged out of shape the way common foundation generally does. We intend to use only Three-ply Foundation from now on."—B. F. Kean & Son.

Delevan, N. Y., Aug. 16, 1924.

"I have been using Three-ply Airco Foundation for the past two seasons exclusively. I have found it so far perfectly satisfactory in every respect. Strong, clean and easy to handle."—A. E. Preston.

The A. I. Root Company, MEDINA OHIO

West Side Station